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THE READER.

SATURDAY, SEPTEMBER 17, 1864.

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DEMAND, according to the fundamental law of Political Economy, creates supply; and supply indicates the existence of demand. We may safely assume, therefore, that the immense and increasing mass of railway-literature which is daily offered to the travelling public is created by a corresponding demand on the part of the purchasers. It is worth while, then, to consider what is the nature of this new class of literature, and towards what form it seems to be tending. The physiology of railway-reading is a subject which cannot yet be described authoritatively. The science is still in an experimental condition; the consumers of this new mental pabulum do not, we fancy, exactly know what they want themselves, and the purveyors have not made up their minds what class of sustenance it will pay them to provide. We have, however, already a sufficient amount of data to go upon to form some sort of theory upon the subject.

In the first place, then, we observe that railway-reading is a practice almost peculiar to the Anglo-Saxon nature. If, in travelling on the Continent, you see a fellow-passenger reading a book, you may give considerable odds that he is a countryman of your own. The Germans are said, and we believe with truth, to read more than any people in the world; but they hardly ever read in a railway-carriage. You may go through the whole length and breadth of the Fatherland without seeing a bookstall at any station except those which are especially frequented by English tourists. It is only at a few of the German metropolitan termini that you can ever get newspapers. We remember, at the outburst of the Schleswig-Holstein war, at a time when all Germany was in a state of passionate excitement for news of the expected attack on the Dannewerke, travelling for a long weary day's journey from Cologne to Hamburg and not being able to meet with a single roadside newspaper. There was no demand, we suppose, and therefore no supply. In Denmark, Sweden, Italy, Russia, and Switzerland, railway-reading, in our English sense of the word, is utterly unknown. In France alone and French Belgium is there anything at all approaching to our own system. On the main French lines newspaper-reading is very common, and at all the great stations there are bookstalls. Of course there must be people who buy the books, or else they would not be offered for sale. But our own experience—a pretty considerable one in Continental travelling—would lead us to suppose that the sale was very small compared with the number of travellers. The books bought are purchased, we fancy, by travellers to read at home—not to read on the journey; and this impression is corroborated by the fact that, at a railway-bookstall in France, you see exactly the same books—barring one exception, of which we shall speak afterwards—that you find in any respectable *librairie* in the towns. In North America, on the other hand, you see in railway-literature, as in most other things, an almost exact counterpart of our English system, carried out, as usual, with somewhat more go-aheadness. Almost every railway-traveller in the Northern States has something to read with him. Throughout the whole length of the journey the newsboys pass constantly through the cars, carrying, besides the papers, an assortment of cheap novels and magazines. If you are not disposed to buy at first sight, you are tempted to do so by an ingenious device. The lad lays down by your side two or three of his books, and leaves them there for half-an-hour or so. You are welcome to take them and turn over the leaves, and return them when called for, without paying a cent. But the hope is that you will grow interested in the story, and purchase it when the boy comes round again; and this hope is very often fulfilled.

The cause of this difference between Anglo-Saxon and other readers is not very easy to account for. It does not arise from English or American railway-travelling being more adapted to reading than Continental journeying, as the contrary is notoriously the case. Reading in an English or an American car is always, to our minds, a process attended with discomfort; yet, somehow, everybody reads. The only hypothesis we can offer as an explanation is that in England and America alone has railroad-travelling become a matter of absolute routine. On the Continent a railroad-journey, to nine travellers out of ten, is still an event, a matter to be thought of beforehand and talked about afterwards; and therefore the mind of the ordinary Continental traveller is not confused or indifferent enough for him to need a book as a refuge from *ennui*. We might add, too, that it is only in England and America where conversation between the passengers in a railway-carriage, thrown together by chance, is the exception and not the rule.

Thus, in endeavouring to form any opinion about the character of railway-reading, we can confine our attention almost entirely to England. In France the literature of the train always seems to us the growth of artificial circumstances, not of a natural demand. Under the Empire a sort of moral censorship is exercised over the station-bookstalls. It is a curious fact, too little noticed by the unsparing critics of Imperialism, that, in many respects, France has been made—outwardly, at least—more moral by the reign of Napoleon III. Just as all prints of an openly meretricious tendency have been removed from the shop-windows, and even the galleries of the Palais Royal have been swept and cleaned, so literature itself has, in some sort, been made decent. For some years the railway-bookstalls were allowed to sell no books except the editions of the "Bibliothèque des Chemins du Fer," a series of novels all—according to the French standard, which is not our standard—eminently proper, though somewhat dull. Unfortunately, you can bring your French horse a moral pail, but you cannot force him to drink out of it; and so gradually the rule has been relaxed, and novels of a less decidedly improving character have been offered to the French traveller. But still at the railway-stalls you do not find works like "Fanny" or "Madame Bovary," or others of the same class, which succeed for the time in tickling the worn-out digestions of Parisian readers. From a different cause the student of railway-reading cannot derive much information about its character from America. Little or no native train-literature has yet been produced across the Atlantic, and the railway-wayfarers of the great Republic are provided with excellent second-hand wares at the most moderate prices. All the popular English novels of the day can be obtained in an American car for from one to two shillings in price. Still, even with the whole field of English literature to cull from, it is curious to observe that the highest class of our novels does not seem to be the most popular with American travellers. Mrs. Wood, Miss Braddon, Guy Livingstone, and the minor fry of ephemeral novel-writers, have, we suspect, a larger constituency of readers in the cars of a Yankee train than Dickens, or Trollope, or Miss Evans. There, as here, there is no demand for works of an avowedly immoral tendency. It is only on the Mississippi steamboats and in some of the Slave State hotel-bookstalls that we have ever seen books of the Holywell Street order offered openly for sale. In fact, there, as here, we should say, the desideratum for a successful railway-publication was to be perfectly proper, to give you plenty of matter for your money, and to make no very great demand on your intellectual powers.

There is no doubt that this observation holds good in England. If any of our readers take the trouble to study the contents of a great railway-bookstall on any of our main lines, he will soon come, we think, to a similar conclusion. Any book, it seems, that is to be largely bought by railway-travellers must be cheap and easily portable. A shilling appears to be the ideal price for this class of works. The monthly shilling magazines are bought largely; but nobody ever buys any of the old high-priced ones. There is plenty of good reading in *Blackwood* and *Fraser*; but half-a-crown is, in French parlance, "a sum;" and, if you are travelling a hundred miles second class instead of first, in order to save five shillings, it seems absurd to the ordinary intellect to spend half your savings on a book to read by the way. Putting aside magazines, cheap shilling novels are the popular favourites. These stories consist chiefly of reprints from magazines or penny periodicals. Never having risen to the dignity of the three-volume, thirty-one-and-sixpenny season novel, they are available for the honours of a humble resurrection in the shilling form. We have before us a list of these novels. To us, as reviewers, the names of most tales which have at any time acquired note of late years are tolerably well known; but we confess that here we come upon a literary "terra incognita." Who ever, out of the pale of penny serials? heard of "The Family Credit," "Leonard Harlowe," "The Young Couple," "The Chair of Destiny," or any other of the series. With the exception of Miss Braddon and Mr. Sala, some of whose early works have been reprinted in this collection—very much, we should think, to their own annoyance—the very names of the authors are, for the most part, unknown to fame. Of the whole series we gather that the police-novels, the recollections of detective officers, the tales of crime and its punishment, are the most popular.

If we come to the question whether this class of reading is desirable, we should find it very hard to give an opinion. It is certainly unobjectionable, and railway-readers might do worse than buy the literature especially provided for their consumption. We have no faith in books of high thought and literary merit becoming really popular with the public of the trains. Some years ago Mr. Murray, if we are not mistaken, tried the experiment of a shilling series of standard works; but the reprints of Macaulay's Essays and Basil Hall's Travels did not take with the class for whose intellectual improvement they were intended. The mind is not collected enough to think deeply on a railway-journey, and travellers want to be

amused, not instructed. To most persons the effect of solitary railway-travelling is depressing; and, if they read, they do so with the wish of diverting their thoughts. The only possible improvement we can see which could practically be carried out would consist in raising the standard of novels provided for passengers. In other words, if our first-class novels were published in a shilling form, they would have a fair chance of driving detective experiences out of the field. Some London publishers have tried this experiment partially by selling really first-class novels at a reduced rate; but the rate is not reduced low enough. Mr. Henry Kingsley's "Geoffrey Hamlyn," for instance, is really much cheaper at six shillings than, let us say, Mr. Hayward's "Hunted to Death" at one shilling. But, then, how many railway-travellers will ever pay six shillings for a book, however excellent? There is only one reason why English railway-literature should not be raised at any rate to the standard of American, and that is a fatal one. As long as the old absurdity is kept up of publishing novels at a price no one but a circulating library can afford to pay, it will never answer to publish these same novels within any reasonable period for less than a thirtieth of their original price. If the great English bookselling houses should ever open their eyes to the conviction that, by adopting the French system, they might immensely increase their purchasers and make themselves independent of the circulating libraries by appealing direct to the public, then, and then only, will railway-literature be rescued from its present condition.

CURRENT LITERATURE.

A FRENCH TRANSLATION OF SHAKESPEARE.

Œuvres complètes de W. Shakespeare. François-Victor Hugo, Traducteur. Tome I.—XIII.—Tomes VII.—Les Amants Tragiques. (Paris: Pagnerre, Libraire-Éditeur.)

THE rich, the successful, and the powerful in this world of ours are apt occasionally to sneer at men of letters and to wonder at the futility of their labours; but, if the great Lord Clarendon, Edmund Ludlow, and the gifted and accomplished Bolingbroke had not in their expatriation occupied themselves with literary pursuits, how utterly miserable would have been their enforced exile, far from their country and the friends of their youth, in a foreign land! In his long sojourn amongst us, the poet, orator, and statesman Châteaubriand employed his leisure in cultivating our literature and translating isolated passages of our great dramatist; and Madame de Staël and her friend De Serres, afterwards Chancellor of France and ambassador of France at Naples, occupied also their weary hours in the same engaging intellectual pursuits. Ugo Foscolo, Arguelles, Alcala Galiano, Martinez de la Rosa, and Blanco White—all exiles—followed these creditable examples of an earlier time; and now we have Victor Hugo, a man of genius and an exile, assisting his son in the study and translation of our great dramatist. "There is some soul of goodness in things evil;" and, in time to come, when Victor Hugo reflects on the past with more magnanimity and philosophic indifference than he can assume at present, he will, perhaps, admit that he would never have given that conscientious study to Shakespeare which he clearly has done had his lot been cast in the gay city of Paris. Let men of the world and statesmen say what they will, there is a pleasure, an intense gratification in study and intellectual employment which only authors can know. In his saddest moments translation roused the flagging spirits of Addison; and, when Canning and Wellesley were, by the infelicity of fortune, thrown out of office, they both occupied themselves in rendering the odes and satires of Horace into their own tongue. Truly has Cicero said:—"Hæc studia adolescentiam alunt, senectutem oblectant, secundas res ornant, adversis solatium et perfugium præbeat, delectant domi, non impediunt foris; pernoctant nobiscum, peregrinantur, rusticantur."

The author of "Cromwell" and "Notre-Dame de Paris" is a man of energetic character, who does nothing by halves. Unlike a great many of his countrymen (who but brilliantly touch the outward shell of the themes on which they so largely descant), M. Hugo has made a conscientious study of Shakespeare and of the literature of the time in which Shakespeare flourished. He has compared and collated the different editions of the great dramatist, waded through the different commentators, from Theobald, Johnson, and Malone to Coleridge, Knight, and Collier, and left nothing which labour or ingenuity could suggest to understand his author's meaning. Not merely has he done this, but he has read nearly everything that has been written on our great national bard by the principal critics of Europe. In this wise, instructed by diligent labour, reflection, and study, aided by the instinct of a man of genius, he has succeeded in faithfully rendering the meaning of the poet with as much strength and simplicity as the genius of the French language will permit. Much of this success may be due to the co-operation of the son, but there can be little question that still more is due to the assistance of the father.

When we first heard of the intention of M. Hugo to aid in a translation of Shakespeare, we confess we trembled for the result. With a brilliant and ingenious, yet forced and exaggerated style, the author of "Notre-Dame de Paris" appeared to us to want that strength and simplicity, and, above all, that knowledge of our history, customs, institutions, and language so necessary to the undertaking on which he had perilously embarked. No writer that ever lived was more catholic or less affected than Shakespeare. Victor Hugo, on the other hand, is, though a Romanticist, more French than catholic in his instincts, and his style is laboured and *maniéré* to a degree. It is full to overflowing of rhetorical artifices, of forced antitheses, and of verbal contortions. This, at least, was the case when Hugo rioted in his pride of place in Paris, and led the young Romanticists of the schools whither he listed. But now all is changed; and it must be admitted, in Shakespearian language, that the uses of adversity have been to him eminently "sweet." In the success and prosperity of Parisian life, when he was all triumphant as an author, the Romanticist writer was turgid and stilted. In exile and in England he has learned, at least in the translation of Shakespeare, a better taste, and has become at once natural and simple. Unlike all previous generations of Frenchmen, he understands his author, so far as we have examined, thoroughly, comprehending the literal and the recondite meaning of the most difficult passages. In the days of Ducis it was not so. That gentleman, like all the men of his generation, had a most imperfect knowledge of our language, and committed mistakes so egregious that they were the subject of ridicule to Frenchmen imperfectly acquainted with our tongue. The rendering of "Out, out, brief candle!" by "Sortez, sortez, courte chandelle!" is almost as ridiculous as the remarkable translation of the title of Love's Last Shift by another Frenchman—"La dernière Chemise de l'Amour." The fact was that Frenchmen of the Empire and of the Restoration were so imperfectly acquainted with English that they could only translate by the help of dictionaries and phrase-books, and even then they made sad hash of the work, as the French newspapers daily proved. It will scarcely be credited that, so late as 1827, in the last years of the reign of Charles X., when the intercourse between England and France was immense, the daily journal in the largest circulation translated "The gentlemen of the Fancy had a meeting on Tuesday last at Crawley Downs" thus—"Messieurs de l'Imagination ont eu une réunion Mardi dernier à Crawley Downs." Such words are enough to raise the ghosts of Tom Crib and Belasco, of Gipsey Cooper, Gregson, and John Gully! Though M. de Barante, who has translated some detached passages of Shakespeare, was not obnoxious to these remarks, still his knowledge of English was derived more from study and books than from familiarity with the spoken language of our time. The same may be said of Casimir de la Vigne, who died in 1843. But Victor Hugo and his son have evidently, since their sojourn amongst us, studied our language and literature as carefully as Philarète Chasles, who gained his knowledge of English in correcting the press at Valpy's printing-office; and the result is that the author of "Hernani" and his heir have rendered Shakespeare, so far as we have been enabled to examine the volume before us, faithfully and effectively. Without being servile, the translation is spirited, yet strictly accurate, attaining those conditions of good rendering so well laid down by Dryden in his preface to his own translation of Ovid. Hugo, too, possesses another advantage which enables him to do justice to his author. He has a brother poet and dramatist's admiration for Shakespeare, and regards him as one of the most consummate masters of his art that ever existed either in ancient or modern times. Of the Roman plays he thinks still higher than Schlegel, who remarks that Shakespeare, in his apparent artlessness of adhering closely to history as he found it, conceals an uncommon degree of art. Our "divine Williams," as a Frenchman even so late as 1830 called him, appears to have known everything intuitively. He makes the most and the best of everything; and of every historical transaction, whether derived from Plutarch or Suetonius, he knew how to seize the true poetical point. His Romans are not, like Ben Jonson's "Catiline" and "Sejanus," derived from books, and created from a well-stored scholastic memory. They are men—they are Romans, instinct with life and motion, with blood, bone, and muscle. The difference between "rare Ben," the ex-bricklayer, and Shakespeare is this—that the one copied and did not create, whereas the other created and did not copy, even where he follows history with the most remarkable fidelity; for over every fact he casts the glorious and golden hue of his own wonderful genius. Coleridge says that, of all Shakespeare's historical plays, "Antony and Cleopatra" is by far the most wonderful, and that it is a formidable rival to "Macbeth," "Lear," and "Othello." Victor Hugo appears also to share this opinion; and we should say Antony was a character that fascinated him. There is a dashing clever *jactance*—an Asiatic love of magnificence and display about this brave and brilliant soldier, whose moral power was as weak as his physical courage was strong, which has its charms for such a mind as Hugo's. In his own works he has painted men as reckless, as short-sighted, as much governed by their passions and as little by their interests and duties to the state and to society as Mark Antony, a thorough voluptuary, who allowed his passions rather than sound policy to gain the sway. Yet, with all this weakness—in Antony's case amounting to wickedness—there is something lovable in the man. The genius of Shakespeare renders him interesting, though it does not hallow his vices. Cleopatra, however, as Hugo says, "est l'âme des évènements;" and there is this curious circumstance in the piece that, in a drama in which a wife claims her rights against a courtesan, it is not the wife who interests us, but the courtesan. The beauty, wisdom, modesty, self-denial, judgment, and virtue of Octavia are as nothing before the fascinations of Cleopatra.

Dulce loquentem, dulce ridentem,

her power over Antony is resistless. Our readers may judge of the fidelity of the translation from the succeeding passage, taken from the fifth scene of the first act:—

Cleop. O Charmian! où crois-tu qu'il est maintenant? Est-il debout ou assis? Est-il à pied ou à

cheval? O heureux cheval chargé du poids d'Antoine! Sois vaillant! car sais-tu qui tu portes? Le demi-Atlas de cette terre! le bras et le cimier du genre humain! En ce moment il parle et dit tout bas, "Où est mon serpent du vieux Nil?" Car il m'appelle ainsi. Mais je m'enivre du plus délicieux poison. Lui penser à moi qui suis toute noire des amoureuses caresses de Phébus—à moi que le temps a couverte de rides si profondes! César au vaste front, quand tu étais ici au-dessus de la terre, j'étais un morceau digne d'un monarque; alors le grand Pompée immobile fixait ses yeux dilatés sur mon front: c'était là qu'il voulait jeter l'ancre de son extase, et mourir en contemplant celle qui était sa vie.

Scarcely less felicitous is the rendering of the following passage of act ii., scene 2:—

Enobarbus. Je vais vous dire. Le bateau où elle était assise, pareil à un trône étincelant, flamboyait sur l'eau; la poupe était d'or battu; les voiles, de pourpre, et si parfumées que les vents se pâmaient sur elles; les rames étaient d'argent: maniées en cadence au son des flûtes, elles forçaient l'eau qu'elles chassaient à revenir plus vite, comme amoureuse de leurs coups. Quant à sa personne, elle appauvrissait toute description; couchée sous un pavillon de drap d'or, elle effaçait cette Vénus où nous voyons l'art surpasser la nature; à ses côtés des enfants aux gracieuses fossettes, pareil à des Cupidons souriants, se tenaient avec des éventails diaprés, dont le souffle semblait enflammer les joues délicates qu'il refraîchissait et faire ce qu'il défaisait.

Agrippa. O splendide spectacle pour Antoine!

Enobarbus. Ses femmes, comme autant de Néréides, ou de fées des eaux, lui obéissaient sur un regard, et s'inclinaient dans les plus jolies attitudes. Au timon c'est une sirène qu'on croirait voir commander; les cordages de soie frémissent au contact de ces mains, moelleuses comme des fleurs, qui font lestement la manœuvre. Du bateau un étrange et invisible parfum frappe les sens des quais adjacents. La cité avait jeté tout son peuple au devant d'elle; et Antoine, assis sur un trône au milieu de la place publique, y restait seul, jetant ses cris à l'air qui, si le vide avait été possible, serait allé aussi contempler Cléopâtre et aurait fait une brèche à la nature!

Agrippa. La rare Égyptienne!

Enobarbus. Quand elle fut descendue en terre, Antoine l'envoya convier à souper. Elle répliqua qu'il valait mieux qu'il fût son hôte, et le décida. Notre courtois Antoine, à qui jamais femme n'a entendu dire le mot "Non," se fait raser dix fois, va au festin, et, pour écot, donne son cœur en payement de ce que ses yeux ont dévoré.

Agrippa. Royale gourgandine! elle a forcé le grand César à mettre son épée au lit; il l'a labourée, et elle a porté moisson.

Enobarbus. Je l'ai vue une fois dans la rue sauter quarante pas à cloche-pied; ayant perdu haleine, elle voulut parler, et s'arrêta palpitante, si gracieuse qu'elle faisait d'une défaillance une beauté, et qu'à bout de respiration elle respirait le charme.

Mécène. Maintenant voilà Antoine obligé de la quitter absolument.

Enobarbus. Jamais il ne la quittera pas! L'âge ne saurait la flétrir, ni l'habitude épuiser sa variété infinie. Les autres femmes rassasient les appétits qu'elles nourrissent! mais elle, plus elle satisfait, plus elle affame. Car les choses les plus immondes séduisent en elle au point que les prêtres saints la bénissent quand elle se prostitue!

To translate this into French was no easy task; yet M. Hugo has fully and faithfully succeeded.

There are two passages which we do not conceive happily rendered. The one is in the fifth scene of the first act, where Cleopatra calls Antony "my man of men." This is rendered by "mon préféré entre les hommes," which is rather a paraphrase than a translation. "The ne'er lust-wearied Antony" is not very happily rendered by "l'insatiable débauché Antoine."

In his introduction to this volume, which extends to seventy pages of prose, Victor Hugo truly says, "'Roméo' est de tous les drames de Shakespeare celui où l'action est le plus rapide." From this play we extract the translator's version of Mercutio's celebrated description of Queen Mab.

Oh! je le vois bien la Reine Mab vous a fait visite. Elle est la fée accoucheuse, et elle arrive pas plus grande q'une agate à l'index d'un alderman, traînée par un attelage de petits atomes à travers les nez des hommes qui gisent endormis. Les rayons des roues de son char sont faits de longues pattes de faucheux; la capote d'ailes de sauterelles; les rênes de la plus fine toile d'araignée; les harnais d'humides rayons de lune; son fouet, fait d'un os de grillon, et pour corde un fil de la vierge; son cocher est un petit cousin en livrée grise, moins gros de moitié qu'une petite bête ronde tirée avec une épingle du doigt paresseux d'une servante; son chariot est une noisette vide, taillée par le menuisier écuriel ou par le vieux ciron, carrosier immémorial des fées. C'est dans cet apparat qu'elle galope de nuit en nuit—à travers les cerveaux des amants, qui alors rêvent d'amour; sur les genoux des courtisans, qui rêvent aussitôt de courtoisies; sur les doigts des gens de loi, qui aussitôt rêvent d'honoraires; sur les lèvres des dames, qui rêvent de baisers aussitôt!—ces lèvres Mab les crible souvent d'ampoules, irritée de ce que leur haleine est gâtée par quelque pommade. Tantôt elle galope sur le nez d'un solliciteur, et vite il rêve qu'il flaise une place; tantôt elle vient avec la queue d'un cochon de la dîme chatouiller la narine d'un curé endormi, et vite il rêve d'un autre bénéfice; tantôt elle passe sur le cou d'un soldat, et alors il rêve de gorges ennemies coupées, de brèches, d'embuscades, de lames espagnoles, de rasades profondes de cinq brasses, et puis de tambours battant à son oreille, sur quoi il tressaille, s'éveille, et, ainsi alarmé, jure une prière ou deux,—et se rendort. C'est cette même Mab qui, la nuit, tresse la crinière des chevaux et dans les poils emmêlés durcit ces nœuds magiques qu'on ne peut débrouiller sans encourir malheur. C'est la styrge qui, quand les filles sont couchées sur le dos, les étrient et les habitue à porter leur charge, pour en faire des femmes à solide carrure. C'est elle——

M. Hugo would have us believe that Shakespeare and our common country were indebted to France for much of the literary glory of the Renaissance. This is absurd. England in this respect owes nothing to France, though, in common with France, she owes much to Spain and Italy. All our writers of the Elizabethan age are deeply indebted to Spain and Italy, but not more indebted than Brantôme, Montaigne, Malesherbes, and Corneille.

"C'est toujours par la France," says the ex-peer of France, "que l'Angleterre est initiée au mouvement littéraire de la Renaissance." This assertion, though flattering to the national vanity of the vainest people under the sun, is destitute of the slightest shadow of foundation in fact. V. K.

STUDIES IN PHYSIOLOGY AND MEDICINE.

Studies in Physiology and Medicine. By the late Robert James Graves, F.R.S., Professor of the Institute of Medicine in the School of Physic in Ireland. Edited by William Stokes, Regius Professor of Physic in the University of Dublin.

THE thirty-two papers in this volume have been selected from those which their author contributed to various periodicals during the greater part of his professional career—that is to say, between the years 1828 and 1851. Dr. Graves wrote much and on a wide range of subjects; and, though we are far from supposing that the volume before us comprises all those shorter writings of his which are worthy of being preserved in a collective form, we need no better guarantee than the editor's name for the fact that the present selection has been well made from his own point of view, which was, that it should include those papers only which bear on Physiology or Medicine. "It is hardly necessary," he observes, "to say that this book is not to be taken as setting forth the state of Physiology in our time; but these remains of Graves have an especial value, as showing how the mind of a great physician dealt with Physiology in its true relations to Medicine." In some instances the contents of the book are demonstrations of important material facts of which Graves was the first discoverer—the functions of the lymphatic system, for example; in others they advocate doctrines of great moment, which he lived to see generally admitted, but which he once held alone in the teeth of all the world, or of which he was the foremost champion, heading a minority which may yet perchance become a majority. The contagious nature of Asiatic cholera is an example of the latter class of doctrines; to the former belongs the principle of that immense innovation which he effected in the treatment of fever, in reversing the latter half of the bad old maxim, "Feed a cold and starve a fever." One day, on entering the convalescent ward of the hospital to which he was officially attached, he began to expatiate on the healthy appearance of some of its inmates who had recovered from severe typhus. "This is all the effect of our good feeding," he exclaimed; "and lest, when I am gone, you may be at a loss for an epitaph for me, let me give you one in three words:—HE FED FEVERS." In the excellent biographical notice of his deceased friend with which Dr. Stokes has enriched the volume before us, he quotes at full length a letter from M. Trousseau, Clinical Professor in the Faculty of Medicine of Paris, which appears as a preface to the French translation of Graves's "Clinical Medicine." The following is an extract from that letter:—

All the precepts of the author upon the treatment of this pyrexia [typhus fever] are so applicable to the severe forms of our typhoid fever that we shall, with the greatest advantage, consult this remarkable work; moreover, the maxims relating to regimen have become the guide of the practitioners of all countries: it is they which now direct us in the treatment of putrid fever. And, nevertheless, when he inculcated the necessity of giving nourishment in long continued pyrexias, the Dublin physician, single-handed, assailed an opinion which appeared to be justified by the practice of all ages; for low diet was then regarded as an indispensable condition in the treatment of fevers. Had he rendered no other service than that of completely reversing medical practice upon this point, Graves would, by that act alone, have acquired an indefeasible claim to our gratitude.

The history of Asiatic cholera, its origin and its progress westward, was detailed by Dr. Graves in a succession of elaborate papers in the first and second series of the *Dublin Journal of Medical Science*, and evidence was brought forward which appeared to him to warrant the conclusion that the disease is propagated chiefly by means of contagion. These papers have been embodied in the second edition of his "Clinical Medicine;" and the author's views on the contagious nature of cholera were again set forth in 1850, in a paper which is reproduced in the book now under review, and which we strongly recommend to the attention of our readers, whether they be lay or medical. The chief conclusions to which the history of cholera, as read by Dr. Graves, appears to point are these:—Its march, in all cases, has been by the most direct route of human intercourse and traffic; in no recorded instance has it appeared in any locality sooner than it might have been brought from some infected place by the ordinary modes of communication; and the rate at which it travels varies with the rapidity of that communication, whether it be by land or by water. These conclusions are diametrically opposed to those pronounced in the famous circular of the London College of Physicians, in 1850, which declares that "cholera appears to have been very rarely communicated by personal intercourse," and that "the committee, without expressing any positive opinion with respect to its contagious or non-contagious nature, agree in drawing this practical conclusion—that, in a district where cholera prevails, no appreciable increase of danger is incurred by ministering to persons affected with it, and no safety afforded to the community by the isolation of the sick." Upon this Dr. Graves quietly remarks that, while the committee "do not express any positive opinion with respect to the contagious or non-contagious nature of cholera, they recommend measures which can only be justified *by a very positive opinion indeed that the disease is not contagious.*"

Robert Graves passed with the highest distinction through the University of Dublin, where he took the degree of Bachelor of

Medicine in 1818. He then went abroad, and studied successively during the space of three years in the medical schools of London, Berlin, Göttingen, Vienna, Copenhagen, and those of France and Italy, resided for some months in Edinburgh, and then returned to Dublin. "In this large and truly liberal education," says his biographer, "which embraced the training of the school, the university, and the world, we can discover in part the foundations of his subsequent eminence." Of course he formed friendships more or less intimate with the leading physiologists and physicians of Europe; but, what was by no means a matter of course, he became acquainted in Italy with Turner, the great landscape-painter, and was his companion in many sketching tours. Their intercourse began in this way:—

Graves was travelling by diligence, when, in one of the post-stations on the northern side of the Alps, a person took a seat beside him whose appearance was that of the mate of a trading-vessel. At first no conversation took place between them; but Graves's curiosity was soon awakened by seeing his fellow-traveller take from his pocket a note-book, across the pages of which his hand, from time to time, passed with the rapidity of lightning. Overcome at length by curiosity, and under the impression that his companion was perhaps insane, Graves watched him more attentively, and discovered that this untiring hand had been faithfully noting down the forms of the clouds which crossed the sky as they drove along, and concluded that the stranger was no common man. Shortly afterwards the travellers entered into conversation; and the acquaintance thus formed soon became more intimate. They journeyed together, remaining for some time in Florence, and then proceeding to Rome. Graves was himself possessed of no mean artistic powers, and his sketches from nature are full of vigour and truth. He was one of the few men in whose company Turner is known to have worked. The writer has heard him describe how, having fixed on a point of view, he and his companion sat down side by side to their work. "I used to work away," he said, "for an hour or more, and put down as well as I could every object in the scene before me, copying form and colour perhaps as faithfully as was possible at the time. When our work was done, and we compared drawings, the difference was strange; I assure you there was not a single stroke in Turner's drawing that I could see like nature, not a line nor an object; and yet my work was worthless in comparison with his. The whole glory of the scene was there." The tone and fire with which Graves uttered these last few words spoke volumes for his sympathy with, and his admiration of, the great painter of nature.

At times, however, when they had fixed upon a point of view, to which they returned day after day, Turner would often content himself on the first day with making one careful outline of the scene; and then, while Graves worked on, Turner would remain apparently doing nothing, till at some particular moment, perhaps on the third day, he would exclaim, "There it is!" and, seizing his colour, work rapidly till he had noted down the peculiar effect he wished to fix in his memory. It is a curious fact that these two remarkable men lived and travelled together for months without either of them inquiring the name of his comrade; and it was not till they reached Rome that Graves learned that his companion was the great artist.

THREE NEW FRENCH NOVELS.

Mademoiselle Cléopâtre: Histoire Parisienne. Par Arsène Houssaye. (Paris: Michel Lévy Frères.)

Olga. Par Louis Enault. (Paris and London: Hachette & Co.)

L'Héritage de Charlemagne. Par Charles Deslys. Two Volumes. (Paris and London: Hachette & Co.)

IN a recent article in the *Cornhill Magazine* Mr. Matthew Arnold expressed a strong opinion on the advantages which French literature had derived from the existence of the Académie Française. The article, as has been already pointed out in THE READER, contained some very questionable propositions. Among others, the author seems to us to have exaggerated the influence of an institution which was powerless to stem the romantic movement of 1830, and which has been unable to repress the enormous literary reputation of two such men, for instance, as Victor Hugo and Michelet—men from whom we do not merely hear what Mr. Matthew Arnold calls the "note," but, indeed, whole *tunes* of "provinciality." Not, however, to dwell on such cases as these, or to enter into a discussion of the question whether the literary style which an Academy will most delight to honour is likely to be the highest kind of style, we should yet like to ask why, if that body possesses all the weight which Mr. Matthew Arnold supposes, it should not long ago have made the publication of such a work as "Cléopâtre" impossible. In England it would be quite easy to find books as intellectually poor, and even poorer. It would not be easy to find one, written by a man who, like M. Arsène Houssaye, had a reputation to lose, which was, at the same time, so unnatural, uninteresting, and morally unhealthy. We will own that we have never been able to discover the peculiar charm which the literature of this class—and "Cléopâtre," be it remembered, is no solitary specimen—possesses for the French mind. Great ability can, of course, shed a halo on the most repulsive things. When Balzac treats kindred subjects we appreciate his genius, and fully understand the admiration he excites. The wonderful power of subtle analysis, and the intimate knowledge of all the less admirable workings of the human heart which he possesses, create a vivid and enduring interest. But, when a second-rate man, devoid of such power, relies upon the impropriety of his subject to give a fictitious interest to a worthless book, the result is by no means satisfactory; and we wonder that the Academy—always supposing it possesses a sufficient repressing influence—should not make a pretty severe use of it. Perhaps, however, Mr. Matthew Arnold would reply that the forty "immortals" compose a court of taste and not of morals. To which we in turn would answer that "Cléopâtre" and most of its compeers possess little literary merit, and that there is a point where bad morality becomes bad taste. Besides, even in an artistic sense, the life of the Parisian harlot has long been an exhausted theme.

To those who have even a slight acquaintance with French novels the foregoing remarks will probably give a fair idea of what M. Arsène Houssaye's "Cléopâtre" is like. The heroine is a model, not indeed of every virtue, but of every possible grace and accomplishment. She is beautiful of course—that is a necessity of the case. But, in addition to her physical perfections, "she rides like Madame de Montespan, she fences like Mdlle. de Maupin, she skates like Mdlle. de Camargo. In a word, she is the most perfect and the most imperfect woman in Paris in the year of grace 1863." Let not the reader, however, think that the mighty muster-roll of her accomplishments is exhausted. She sings like the first of Italian singers; she paints so that painters are rapt with astonishment; she is such an adept in science that her scientific friends say she understands Newton better than he understood himself; the world of literature has no secrets for her; and she writes as she sings and paints. Nothing truly is beyond the ken of this female admirable Crichton. Even those things from which one would have supposed that her hideous profession would have debarred her have charms for her finely developed soul; and she has her hours of *dévotion*, reading Thomas à Kempis and attending mass. One of her whims is to live a double life, and, by the help of much legerdemain and the co-operation of a friendly duchess, to move at the same time in the most respectable and most disreputable circles in Paris. This naturally is the point round which the greater portion of the story turns.

Cléopâtre—this, as may be supposed, is only a *nom de guerre*—is a young woman of respectable family, who, on the night appointed for her wedding, eloped with a youth whom she loved against the wishes of her parents. When his very small stock of ready money was exhausted he abandoned her *sans façon*. But, at the time the story opens, he has returned from Algeria, whither he had gone to make his fortune, and re-fallen desperately in love with his old flame. She is half induced to listen to his suit, though, besides having certain old scores to pay off, her mobile affections are then engaged to a wealthy artist-jeweller. This young gentleman is simply a very vile scoundrel, and we should be loath to think with M. Arsène Houssaye that he is a type of the rich young Parisian of the present day. He forges his father's signature apparently at repeated intervals, and then, with the help of a female associate, knocks down an English friend of his father's in the Bois de Boulogne, and robs him of his pocket-book, containing 800,000 francs. The friend recognises him and tells the father. A grand scene takes place. The father discusses the question with a good deal of warmth, refers in a general way to Brutus and Peter the Great, and gives his son a pistol, telling him to save his honour by blowing his brains out. The son seems to recognise that there is a good deal of force in the father's arguments; but, though the premisses are sound, he practically objects to the conclusion, and, gradually sidling to the door, runs for his life. The stern parent follows his son to Cléopâtre's house. He explains the object of his visit. Cléopâtre fully recognises the truth and wisdom of the view he has taken of the aspect of affairs. She impresses upon Max's mind that he really must kill himself; and, to show him the way and instil some courage into his craven heart, she takes the poison contained in one of the pearls of her necklace. At this opportune moment her first lover, Rodolphe, appears. He and Max have a struggle over her prostrate body, and, to make things pleasant, determine to fight a duel. Unfortunately there is but one pistol—that left for suicidal purposes by Max's father. This is a drawback; but "Where there's a will," says the proverb, "there's a way." The rivals play cards to determine which shall shoot the other. Max wins; but "suddenly he is illuminated as if the redemption had shone in his face," and, in a tardy but splendid triumph of virtue and heroism, he blows his brains out. Rodolphe takes up Cléopâtre, who was not quite poisoned, carries her away, and after a few days has the banns proclaimed for their marriage. She allows everything to go forward till the night preceding the wedding, and then, in another triumph of self-abnegation, runs away from his house and dies. Rodolphe, M. Arsène Houssaye gives us to understand, is rewarded for his noble conduct by the hand of a duchess of doubtful morality.

So ends this book, replete with sickly sentiment, false morality, and scenes of questionable taste. If the author, as his dedication would seem to imply, thinks that, by writing such a work, he has made anyone "*aspirer l'air vif de la vertu*," we can assure him that he is labouring under a mistake—not to say a gigantic delusion.

M. Énault's "Olga" is a far healthier work than "Cléopâtre." There is, indeed, much in the conduct of the personages which, though not spoken of by the author with disapprobation, would not commend itself to an English conscience; but, on the whole, vice is called vice, and virtue, virtue—which is always a comfort. There is a slight and, as it seems to us, an unnecessary improbability in the *mise en scène*. The book purports to be a story told at an evening-party by a gentleman who had himself heard it at Moscow. Now people at evening-parties don't tell stories three hundred and thirty-six pages long. Their doing so must naturally be an event of such rare occurrence that the novelist, whose aim is verisimilitude rather than truth, should hesitate to avail himself of such doubtful precedents. This, however, as we have said, is a matter of small moment. The tale is a Russian one, telling how a certain Prince Barinsky—a Don Juan of enormous wealth and great captivating powers—

falls seriously in love with Olga Volguine, his sister's friend and companion. Unfortunately the prince is married, and not in a position to obtain a divorce; and the lady's virtue is unassailable. She, however, is as much in love with him as he with her; and, finally, in order to escape from his importunities, and from the too eager promptings of her own heart, she flies, and takes refuge in a convent. Barinsky, nothing daunted, goes seeking her throughout the empire. At last, in the chapel of a convent in the town of Kieff, he recognises her magnificent voice, and discovers that in four days she is going to take the irrevocable vow. With the help of his almighty gold, and at imminent personal risk, he penetrates into the crypt where she is to watch alone on the night preceding her taking the veil. The scene is well described. Prince Barinsky pleads with all the passion of his nature; beats down all opposition; tells Olga that he has obtained the long-coveted divorce; threatens to remain where he is and meet a certain death; and finally carries her off more dead than alive. A pseudo-marriage ceremony is performed, and the poor woman, after the bitter sorrows of the last few years, is tasting the sweets of happiness, when gradually certain social signs reveal to her that she is Barinsky's mistress, and not his wife. The prince, to do him justice, does all he can to repair the great wrong of his lie. He is unremitting in his efforts to obtain a divorce; but his strong will and great influence fail before a will that is even stronger than his own—that of the Czar Nicholas. The eldest son born of the union dies in his boyhood, killed by the sense of his equivocal position. The father does not long survive. A letter containing the news of his real wife's death, and, therefore, of his own freedom, proves too much for his care-enfeebled constitution. He falls, stricken down by apoplexy; and, though the Czar at last consents to do tardy justice to the beauty of Olga's character, and legitimates the marriage retrospectively, yet the story ends, as such a story should, in sorrow. The novel altogether is fully equal to the average, and we have read it with interest.

M. Charles Desly's "Héritage de Charlemagne" has been a considerable puzzle to us. Had we not been aware that the author had already written several novels, we should unhesitatingly have pronounced it to be the first work of a clever young man. This juvenility shows itself in many ways: in the unrestrained admiration for personal prowess and physical force—in the sharp distinction drawn between the good and the bad personages—in the simple, rather crude nature of their emotions—and especially in the very character of the book, treating, as it does, of knights and chivalry, imprisoned ladies, and deeds of daring. All speak of what Keats calls—

"The shadows haunting fairily
The brain, new stuff'd in youth, with triumphs gay
Of old romance."

And here we may casually remark how strangely all this literature, so popular thirty or forty years ago, has now gone out of date. Indeed, the appearance of such a work as the "Héritage de Charlemagne" is almost a phenomenon.

To describe the plot of a book consisting entirely of incidents and adventures would take a good deal of space and be a very ungrateful task. Suffice it to say that it contains the *faits et gestes* of thirteen knights of unexampled prowess, whom Charlemagne had bound by an oath to join for the defence of his son Lodewig the Pious in the hours of his peril. There were originally twelve only; but one of them on his death-bed left the care of fulfilling his vow to his two sons. "The brave Roland," his sense of duty overcoming the reluctance of years, abandons the hermitage, or, as the poet calls it,

"The pile
Which he built above the nun's green isle,
Whence sad and oft looked he,
When the chant and organ sounded slow,
On the mansion of his love below,
For herself he could not see."

He bids farewell to Nonnenwerth for a time, and places himself at the head of the small band of heroes, who perform wonders, redress wrongs, attack and put to flight whole armies, manage to turn up whenever they are wanted with an *à-propos* which might be the envy even of the personages in M. Alexandre Dumas's novels, and, in short, do everything that could be expected of men of their name and fame. Fate proves ultimately too strong for them, and their efforts to stay the decadence of the empire are unsuccessful. That such a book should ever be very popular with grown men is unlikely. Few persons after reaching a certain period of life could read the "Seven Champions of Christendom;" and even the "Morte d'Arthur," notwithstanding a smack of age and a vigorous old English style, is wearisome to read through. With both these works the "Héritage de Charlemagne," making allowances for certain novelties of treatment, has strong analogies; and we can heartily recommend it as a healthy, wholesome book for boys. Their love of adventure and of story for its own sake will find ample food in its episodes. As for "Olga," we recommend it to those who feel an interest in a fair average novel, and who think from our very cursory analysis that they are likely to find pleasure therein. "Cléopâtre" we recommend to no one.

THE INSPIRED BRITISH INCH.

[SECOND NOTICE.]

Our Inheritance in the Great Pyramid. By Professor C. Piazzi Smyth, F.R.SS.L. & E., Astronomer-Royal for Scotland. (Strahan & Co.)

WE concluded our last week's notice of this book by showing how Professor Smyth had arrived at his first grand *dictum*, which, dealing with the pyramid as a pyramid simply, announces, in the proportions of its almost mountainous sides and base, a solution of one of the "most radical propositions in pure mathematics." But, before we pass on to the title-deeds of our inheritance, secured to us nineteenth-century earth-dwellers—we fear to the detriment of our remote ancestry—by this securest of safes, let us, inspired by a feeling strangely akin to that kind of gratitude which consists of a lively appreciation of favours to come, make one remark. Is it not possible that the other pyramids of Gizeh, under a like scientific treatment, may be brought up and down respectively to the same magic standard? Surely differences in the angles of the faces amounting to twenty-nine minutes of arc in one case and fifty-one in another are not altogether untractable; and, if a believer in the Divine origin of the one should fear to touch the others lest a hieroglyph—that is, a hieroglyph more serious than a quarry-mark—should be encountered, let us suggest that the language of any nation is not *necessarily* "accursed," even when we understand it, nor are all inscriptions *necessarily* the work of the founders of the building in which they appear.

With regard to the aforesaid title-deeds, we really must refer our readers to the volume itself, for their clauses are rather dry reading, and are none of the clearest. We read:—"The linear measure of the base of this colossal monument, viewed in the light of the philosophical connexion between time and space, has yielded a standard measure of length which is more admirably and learnedly earth-commensurable than anything which has ever yet entered into the mind of man to conceive." In other words, a division by an empirical number (366) of the empirical value of the base (763·81 feet) of the pyramid shows that the founders of that structure used the British inch, knowing it to be $\frac{1}{\text{ooooooooo}}$th of the earth's polar diameter. The British inch, therefore, is our inheritance in the great pyramid; and that proud designation is not to be applied to the effete parliamentary standard inch of to-day, but to a finer fellow—some $\frac{25}{100000}$th of the aforesaid inch taller—who flourished, we fancy, from the volume before us, somewhere about the time of Magna Charta.

And here we confess that we are sorely puzzled; for our author is silent on a subject of great importance, which really may result in a flaw in the title-deeds after all. Mr. John Taylor, to whom the present book is dedicated, and whose investigations, as we have before mentioned, are entirely endorsed by Mr. Smyth, rightly concludes that the sacred cubit (which, according to Professor Smyth, =25 British or pyramid inches=1 pyramid *arm*) existed before the flood, the length of Noah's ark being regulated by it; but, at the same time, he mentions that, when the "*new earth*" was measured in Egypt after the deluge, it was found that it exceeded the diameter of the "*earth before the flood*" by 2,336,000 inches, or nearly 37 miles. We are not informed which diameter is in question; but possibly this is immaterial, as we read further on—"The former earth may have been more spherical." Mr. Taylor ascribes the larger equatorial diameter of the "present earth" to the centrifugal force acting on it when completely saturated "by the waters previously kept asunder from it by the intervention of the firmament" (Taylor p. 95). We need not say that the Astronomer-Royal for Scotland's opinion on these nice, not to say knotty, points—which are probably new to most of our readers—would have been of the utmost value!

And now a word about our strong box—the famous "porphyry coffer." Twenty-five separate measures of it, by our Nile travellers above-mentioned, are given. These give the length variously between 144 and 74 inches, the breadth between 72 and 30 inches, and the depth between 60 and 36 inches for the exterior! Twenty-two of these are summarily dismissed, the services of the French academicians being also dispensed with; and there remain Howard-Vyse, and Greaves, whose measures are as follows:—

	Exterior.			Interior.		
	Length	Breadth	Depth	Length	Breadth	Depth
Greaves	87·5	39·75	39·75	77·856	26·616	34·320
Vyse . .	90·5	39· 0	41· 0	78· 0	26·5	34·5

It is very fortunate for one of these that the interior only is required by our author. For the academicians were rejected because they were out—at least our author writes so in his study—three inches in the depth; and we find here equal discrepancies both in the length and depth of the exterior—just the easiest measures!

Well, having called in the aid of these rejected academicians to tell us the precise length of Mr. Greaves's inch, we have 70,982·4 cubic inches for his measure of the coffer—4 English quarters, as by law established, containing 70,982·1! Surely we may here cry "*Eureka!*"? No! The Astronomer-Royal for Scotland's "theoretical conclusion of what the coffer ought to measure" is but 70,970·2; and we are all abroad again! for this last set of figures "refers to a very peculiar phenomenon, and depends entirely for its correctness upon our knowledge of the mean density of the earth," which, alas! we must look upon as out of the pale of Divine inspiration; for Mr. Smyth—after candidly telling us that, "if all our object had been to get a theoretical quantity to agree with the four English quarters and Greaves's corrected measure of the coffer, *there would have been no trouble in obtaining it precisely*" (p. 155)—adds that his object is to get at "the truth in nature," in this it seems, the coffer, in spite of its inspired origin, fails him.

But it is time that we said a word about the latitude indications—a really valuable portion of the book, and, of course, treated *ex cathedrâ* by so eminent an astronomer of the second generation. Plate 5 lies before us as we write; and we confess we are driven to accept, not only that the pyramid is truly oriented, but that the upper and lower passages on the north face did once truly point to the upper and lower culminations of *a* Draconis—the star which did duty for us as a pole-star before the promotion of Polaris. Professor

Smyth's investigations have, therefore, enabled him to undertake the astronomical determination of the date of the building of the pyramid with data superior to those at Sir J. Herschel's command some years ago. The results, however, are wonderfully concordant. Sir John's calculation came out 2400 B.C.—Mr. Smyth finds 2500 B.C.

Judge, then, of our surprise, gentle reader, when, on turning to the margin of our bibles and consulting Archbishop Usher, we found that, if the latitude indications are worth anything—and, on our part, we believe they are worth much—the great pyramid of Gizeh was built 151 years before the flood—in fact, on Mr. Taylor's "former earth"!

Now Mr. Taylor, who knew of Sir John Herschel's calculation, saves his credit by saying boldly and unflinchingly—and we admire him for it—that Noah built the pyramid. Professor Smyth is more cautious; but, though he gives no dates—favouring us instead with a long chapter on the Hyksos, a very safe topic—he evidently does not place its foundation before the creation and consolidation of an Egyptian nation; for we have a touching picture of Egyptians assisting blindly in its erection "as bees, working laboriously, bit by bit, according to the will and fiat of the great Architect," as made known to them by the chosen race; their compelled labour—"a judgment for their sins" (the nation must have been in existence long enough to have created a large national moral debt)—being "*fully made up to them in kind afterwards*, and from the same High directing quarter," when the aforesaid chosen race were compelled by the Egyptians to make bricks without straw!

We need not stop to remark upon this strange inconsistency; but we must stop to make a reflection. Surely this would-be demonstrator of the Divine origin of the pyramid has, by these latitude indications, all unconsciously, as it seems to us, not only upset his own theory, but added another to the daily increasing number of proofs of man's antiquity!

Our space is exhausted, and many marked passages are yet unreferred to; let us, therefore, be fair to our author, and confess that we have not alluded to one-tithe of his arguments. But we have not quite finished with one of them—the Scriptural argument—the introduction and style of which we confess have perfectly amazed us. What need of tacking on an inspiration theory, which cannot be proved to be true, to a chain of measurements and deductions which can be proved to be true, and should have been by the writer of this book before he gave it to the world?

We are content that "the Hygeian system of medicine" should be traced to the Bible by the fact that "Moses, the Jewish lawgiver, by Divine inspiration, first made known that 'The Blood is the Life;'" but we are not content that an Astronomer-Royal for Scotland should support his discoveries in like manner. Nor does it conduce to a greater reverence for Holy Writ to know that the "stone of stumbling" and the "chief corner-stone" mean nothing but the apex-stone of the pyramid, which was "all sharp points, . . . one sharp corner . . . always sticking up in the air," or (p. 362) that, when the corner-stone of the pyramid was finally placed, that the act was greeted by "the morning stars singing together, and all the sons of God shouting for joy."

Or, again, is it decent in an author writing "to vindicate the ways of God to man," to talk of the "bullying of French writers and the wheedling of the Anglo-French traders among themselves anent the metric system—for which, we read in another part, there is a "positive bellowing"—or to plead for its rejection by such an argument as this, which reminds one of a certain treatment of "plaintiff's attorney"?—

> An ancient lady three years hence inquires the price of half-a-pint of milk, and is told by the shopkeeper that he dare not sell her that measure lest he be sent to prison by the apostle of commercial peace and good-will to all men; but he can legally sell her—and here he makes a calculation—·0·028 of a litre, which is not far from half-a-pint, and that its price is only 0·0666, &c., of a francobungus, or positively dirt-cheap, if she can only see it.

If Professor Smyth will take the trouble to read the report on the best means of providing for a uniformity of weights and measures—a report drawn up by such men as the Astronomer-Royal, Sir William Armstrong, the Master of the Mint, Professor W. A. Miller, Dr. Robinson, and Professor Williamson—about to be read at the British Association meeting, he possibly may be inclined to lay the *onus* of the introduction of the unpious and unholy metric system upon other shoulders than those he has chosen.

Would that Professor Smyth had written less! If the admirable account of our present knowledge of the pyramids—an account prepared with the utmost care, and resulting evidently from a perusal of almost every book on the subject—and the proposed system of English metrology been left to stand by themselves, the work would have been a necessity in every library. As it is, the really valuable portions are so diluted with a quantity of such questionable matter—not to say nonsense—that, in spite of the many interesting chapters in it—in spite of its admirable illustrations—we much fear that many who take it up will lay it down again with a feeling of disappointment mixed possibly with something worse.

NEW HANDBOOKS FOR PARIS AND SWITZERLAND.

A Handbook for Visitors to Paris. With Map and Plans. (Murray.)

Stanford's Paris Guide. With Three Maps. New Edition. (Stanford.)

The Knapsack Guide for Travellers in Switzerland. With Clue-maps, Plans, and Mountain-outlines. (Murray.)

TWENTY, thirty—nay, even fifty years ago, Paris was the most intellectual and agreeable capital in the world. Perfect freedom of speech and of the press were then combined with high civilization, with perfect polish and good-breeding, and with that luxury which has always rendered Paris so charming a resort for philosophic cosmopolitans. But the Paris of 1864 vastly differs from the Paris of 1815, from the Paris of 1830, and from the Paris of the first months of 1848. Paris is now an infinitely larger, a more magnificent, and a more open, lightsome, and wholesome city than it was in the olden time. The splendid, the showy, the sensuous, the luxurious, more than ever predominate; but the intellectual ability, the awakened intelligence, the freedom of discussion and conversation, the wit, the *esprit*, that distinguished Paris under the elder and the younger Bourbons, have disappeared with the parliamentary system, with the freedom of the press and of the Chambers, with the eloquence of the senate and the bar and the wit of the *salons*. Yet, to a stranger who visits Paris for pleasure—merely to eat, to drink, and be merry, and to clothe himself in "purple and fine linen"—the city of Paris is still the capital so graphically described by Philip de Comines:—"C'est la cité," says the old chronicler, "que jamais je visse entouré de meilleurs pays, et plantureux, et est chose incrédible que des biens y arrivent." In Paris, if you have but money enough, and the desire to spend it, there is everything that can minister to individual luxury and gratification, everything that can please the palate, adorn the person, or satisfy the omnivorous vanity of all human kind. The intellect and cleverness of the great body of Frenchmen are now directed with feverish anxiety not to public affairs, but to the speediest process by which one can grow rich at a bound, and having attained fortune, spend it in luxurious self-indulgence. Wit, eloquence, poesy, philosophy, are, and have been for some years, in abeyance; but Paris is still the city which Mercier described as "le paradis des femmes, le purgatoire des hommes, et l'enfer des chevaux." Never at any previous time, not even in the days of Louis XIV. or of the Regent Orleans, or of Louis XV., was half the money spent that is now disbursed on the table, on equipages, on dress, on jewels, on furniture, and on personal luxury and adornment. Hôtels, rôtisseurs, cafés, traiteurs, glaciers, and crêmiers spring up daily to gratify the propensities of a populace eager in pleasure, excitement, and purely animal enjoyment. But this is the industry of luxury rather than of necessity and utility—an industry which exclusively consults the improvident and self-indulgent caprices of an era equally ostentatious and selfish. But, with all its agreeable faults and too fascinating follies, Paris is, under every government, a pleasant *séjour* for all classes of English—for the old, the young, or the middle-aged, whether male or female. No wonder, therefore, that guide-books multiply, and that new and varied editions of "Murray" are called for. Notwithstanding our unrestricted intercourse with France since 1814 and 1815, there never has been till lately anything like a good guide-book of Paris. Plantas's, the first picture of Paris, which appeared in 1814, though useful at the time to the English, was but a poor production, and Galignani's, though bulkier in form, was in no respect better. The French and English Guides of Reichard were bookish *résumés* of archæology, antiquities, and history, savouring wholly of the past and touching little on the actual and present. Mr. Murray was the first who came to interrupt the stupid uniformity of this odious system; and, nearly twenty years ago, the publication of his "France" placed him before all competitors. He now comes before the public with a volume on Paris, intended to convey, in the smallest possible space, a description of the most remarkable objects of the French capital. He has adopted—and, we think, correctly adopted—an alphabetical arrangement, as the most practical and the least troublesome to use. The various routes by which Paris may be reached from England are described, as well as the most important localities on the way. The plan of the city is carefully marked out, and is the best we have ever seen in any guide-book. It is, indeed, so clearly arranged that the tourist will find no difficulty in piloting himself through the city.

In the general information, copious details as to passports, money, hotels, restaurants, cabs, cafés, and reading-rooms are given, though we are surprised to find the Hôtel Mirabeau, in the Rue de la Paix, but slightly commended, and there is no mention whatever of the Hôtel Chatham, in the Rue Neuve St. Augustins. Both are excellent houses, and well situated; and the former was used by the Prince of Wales during his stay in Paris. Almost the only thing to which we can take exception in Mr. Murray's compact and well-got-up little volume are his bills of fare. He is clearly not as accomplished, or so much at home, in gastronomy as in other matters; yet most visitors to Paris in our day will agree with the lines—

> "Ici bas vaut mieux gastronome,
> Qu'astronome."

A course of culinary literature under a good master would be a great advantage to him; or, if he prefer it, we can give him an introduction to a literate gastronomer who would be happy to supply him, not *lucri causa*, but "free, gratis, and for nothing," with better and more appetizing, suitable, and relishing bills of fare than he has introduced at pp. 30 and 31. *Côtelettes de mouton à la Soubise*, we beg to assure Mr. Murray, does not mean cutlets with a slight onion sauce, but with a *purée* of onions *à la Soubise*. The only ingredients in this sauce, beside onions, are cream, butter, nutmeg, pepper, and salt.

We add our testimony, from forty years' experience, to all that Mr. Murray says in favour of the Café Foy. It is a thoroughly good, old-fashioned coffee-house, in which neither smoking nor billiards is permitted,

and in which the coffee, chocolate, and brandy are of the best. It is frequented by the best class of the *bourgeoisie*, and the waiters are civil and obliging. There is an abundant supply of journals, and *Galignani* is taken. Mr. Murray's scheme for seeing Paris in twelve days seems methodically arranged, and is, no doubt, quite feasible. It is well to point out objects of general interest and also of special interest to the artist, the antiquary, the architect, the man of science, the commercial man, the manufacturer, &c. The population of Paris in 1863 was 1,696,141 souls. As a curious comparison, it may be noticed (says Mr. Murray) that the number of horses in harness passing through the Boulevard des Italiens was counted and found to be 10,750. The number of vehicles crossing London Bridge between 8 a.m. and 8 p.m. was 18,000, which would give probably 28,000 horses in harness.

Mr. Murray's *résumé* of the history of Paris is succinct, yet sufficiently full for the passing stranger. He scarcely does justice, however, to what the Bourbons did for Paris. Eighty new streets and thirty-three new churches were erected by Louis XIV. In the same reign the Salpetrière and the Hôtel des Invalides were called into existence, the Tuileries and Pont Royal were finished, and the beautiful gardens laid out as now. Then rose into existence the Place Vendôme and the Place des Victoires, more solidly built than any Imperial erections, and the noble arches of St. Denis and St. Martin. The streets were then first lighted, and attention paid to drainage and sewerage. Paris undoubtedly owes a good deal to the first Emperor Napoleon, and perhaps what he has done for the French capital is more succinctly set forth in Stanford's Guide (the best after Murray's) than in the volume we have placed at the head of our list. Under Napoleon the Rue de Rivoli was continued, and new quarters rose on the north and west of the capital. The magnificent avenue of the Champs Elysées was then formed; the Bourse, the Arc de Triomphe, the Madelaine, and the Hôtel d'Orsay erected. The Palace of the Tuileries was extended, and new bridges facilitated communication across the Seine. But Louis Philippe—the much-abused Louis Philippe—did much more for Paris than Napoleon I. He completed the Arc de Triomphe, the Madelaine, and the Champs Elysées; he erected a splendid hospital in the north of Paris; he constructed the Ecole des Beaux-Arts, the Library of St. Geneviève, and the Ecole Normale; he enlarged the College of France, added to the Palais Bourbon, built the churches of Notre-Dame de Lorette and Saint Vincent de Paul, and increased to double its size the Hôtel de Ville. He widened old and opened new streets; so that the eye could traverse the space between the palaces of Francis I. and Catherine de Medicis. He levelled, decorated, and paved the Place de Louis XV., raised the obelisk of the Luxor and the column of July. But the present occupant of the Imperial throne has done more than this. During his reign the Hôtel de Ville has been finished, the Place du Carrousel enlarged, the Louvre completed, and the Rue de Rivoli carried on to the Hôtel de Ville in a street unequalled for length, though it may be surpassed in picturesqueness and durability, for most of the houses are mere lath and plaster. The "tooth of Time" will, before 1964, eat into these thin partitions, miscalled walls. But, though stonemasons, carpenters, and bricklayers have had a glorious time of it for the last ten years, yet the thinking portion of the nation feels that there are things more important to a people than wide streets or the demolition of *culs-de-sac*. Is the union of the Tuileries to the Louvre—are the the widening of the streets and the creation of barracks in every *arrondissement* (by which cunning device it is thought to put an end to *émeutes* and barricades) any compensation for the decay of public spirit and the decline and fall of poetry, eloquence, literature, and the belles-lettres?

Mr. Stanford's Guide is cheaper, but less copious than that of Mr. Murray, and it is, as we have said before, only second to it. These two books are sure of the market, and they must supersede all others.

Murray's "Knapsack Guide" for Switzerland is one of the most admirable little books it has ever been our good-fortune to meet. It is more compact than Ball's, recently reviewed in these columns, and contains an index-map to Switzerland and to Savoy and Piedmont in the two fly-leaves. It appears from this Guide that there is now scarcely a second-rate town or village in Switzerland that is not connected by the electric telegraph, and from any of them a message not exceeding twenty words can be sent for one franc to any part of Switzerland. Travellers can thus, before starting in the morning, secure quarters for the night, or even order their dinner. The directions and precautions for health in this Guide are sensible and valuable. We learn from this little volume, which every traveller should possess, that the labour of the dogs at the *hospice* of St. Bernard is so great that their life never exceeds nine years, owing to the attacks of rheumatism, which is the bane both of dog and man. The infirm dogs are generally killed. K.

OYSTER-CULTURE.

The Artificial Propagation of Oysters. By M. Coste and Dr. Kemmerer. (Brighton: Pearce.)

The Oyster: Where, How, and When to Find, Breed, Cook, and Eat it. Second Edition. (Trübner & Co.)

Statement of Grievances of Dredgermen and Fishermen of Kent and Essex. (Canterbury: *Kentish Observer* Office).

AN Act of Parliament has recently been passed enabling certain persons to take possession of a large portion of the foreshore at Herne Bay for the purpose of breeding oysters, which Act, as might have been expected, has given great offence to those interested in existing companies; for there is already at Whitstable, close by, an opulent company of oyster-breeders, who annually send a very large quantity of that favourite mollusc to Billingsgate. The fishing-ground of this company is extensive, occupying a space of 1200 acres, and affording employment to about 2000 individuals. The operations of these dredgers approach very nearly the system of culture pursued in France, the difference being that the Whitstable men do not begin by saving the *spat*—that is, they do not breed their own oysters—but content themselves with buying brood-stock from their neighbours at Colchester and elsewhere; and the extent of their trade may be guessed from the fact of their having paid, in the course of five years, nearly £150,000 for brood. This company has a fleet of boats which is valued at £20,000; while they estimate their lying stock of oysters as being worth at least £200,000; and the earnings of the freemen of the company have averaged about £1. 4s. a week for the last fifteen years.

From the little volume which we have placed second on our list we extract the following:—

> And here let me add that, in the Essex fisheries at Pont, a considerable trade is carried on in "Brood," the price of which varies from 4s. to 5s. 6d. per "Wash," which is two pecks at Colchester, or one in London. Mr. Hawkins gives the complement of oysters in a "Wash" as follows:—During the first year the Spat cannot be numbered; the second year, Brood, 1600; third year, Ware, 600; and the fourth year, Oysters, 400. A London bushel of the first year consists of Spat, the number of which cannot be ascertained; of the second year, Brood, 6400; of third year, Ware, 2400; and of fourth year, Oysters, 1600. These figures show a four-fold increase in three years.

Oyster-culture is a very simple process, and is at present, perhaps, the most profitable industry carried on upon the foreshores of the French seas. The grand secret of oyster-culture lies in the fact that the spat may be collected at the time of spawning, and, under favourable circumstances, may be grown in a very few years to a size suitable for the market. There is no fixed time at which the young of the oyster arrive at maturity; the growth varies according as circumstances are favourable or otherwise; and at some places oysters are marketable in about three years, while at other spots five years elapse before they are saleable. It is pretty certain that, under any circumstances, the oyster does not become reproductive till it is above three years of age; and no quantities of the mollusc should be sold till they have had an opportunity of reproducing their kind—a maxim which should be laid down as regards all kinds of fish.

A great variety of plans have been tried for the purpose of securing the oyster spat. In the Lake of Fusaro, which is the oldest breeding-place we know of, the method adopted was to drive in stakes of wood, and hang upon them bunches of underwood, in order to intercept the seed of the oyster. This plan was adopted at various places on the French coast with varying success, fagots of branches having been withdrawn covered with oysters of all sizes.

The author of "The Oyster" refers to an interesting report on the subject which has been made to the French Government by M. Coste, on the results of experiments made for the improvement of oyster-beds.

> The locality chosen was the bay of St. Brieux, on the coast of Brittany. Between March and May 1859 about 3,000,000 oysters, taken from different parts of the sea, were distributed in ten longitudinal beds in the above bay. The bottom was previously covered with old oyster-shells, or culch, and boughs of trees arranged like fascines. To these the young oysters attach themselves; and so fruitful are the results that one of the fascines was found at the end of six months to have no less than 20,000 young oysters on it. The report further states that 12,000 hectares may be brought into full bearing in three years at an annual expense not exceeding 10,000 francs.

An imitation of the natural beds has also been attempted at some places, consisting of builders' *débris*, on which were heaped quantities of old shells and other sea-ware; and this plan has proved successful. The latest novelty is the Kemmerer tile, which, being portable, is movable from place to place, and, we believe, has been found to answer very well. The securing of the spat is sometimes a difficult matter, because the cultivators cannot very well judge where it may fall. Thus it has been known to be the fact that a portion of the oysters at Whitstable have thrown off an immense amount of spat, which, having floated away and settled down on the Essex coast, had ultimately to be bought and paid for as brood by the Whitstable company. A secure plan for obtaining this spat is therefore of great consequence to those interested. Erections, locally called *parcs*, have been constructed in France by laying down rows of stones, or dikes, as we call them, in order to intercept the spawn; and, as the oyster is a most prolific animal, immense quantities can be collected, if the necessary care be taken. After the oysters have been kept in the *parcs* for about two years, they are removed to ponds, called *claires*, or feeding-beds, for the purpose of being fattened for sale; large numbers of these *parcs* and *claires* have been "conceded" by the French Government to industrious persons, who make an excellent income by means of oyster-culture. They have, however, only a temporary interest in the property, as tenants-at-will.

With regard to the cost of oyster-culture, especially as pursued in France, the following information from a document sent to the Foreign Office may prove useful. A ten-acre bed, we are told, may be carried on for an annual expense of from £24 to £80 a year, according to the mode of culture that may be adopted, whilst the capital expended varies in about the same ratio, the difference depending on whether M. Coste's fagots or the local system of tiles be adopted. These beds are situated in a natural basin,

which is filled with oyster-farms — three thousand acres being devoted to the cultivation of that delicious mollusc. Ten years ago the basin produced only £40 per annum, while now oyster-culture alone produces an annual revenue of at least sixteen thousand pounds!

The "manufacture" of the far-famed green oyster of Marennes can be witnessed on both sides of the creek of the river Seudre. The fish-farms at that place extend over many leagues of the sea-shore, but not quite close to the water, and are most industriously cultivated by the owners. *Claires* for the greening of oysters require to be very carefully constructed and diked in, so as to be water-tight; for they are not, like the ordinary ponds, submerged at each tide. They are so constructed as to retain the water with which they are filled at the periodical visitation of the high tides. A ditch is made round the interior of the pond, in order to collect the slime consequent on the visit of each tide; and, before any oysters are laid down to green, the place is frequently inundated, in order to its being properly prepared for its work, weeds and extraneous substances are cleaned away, and the whole surface nicely smoothed. When all this is done, and when the place is ascertained to be water-tight, it is stocked with common white oysters. These are gathered in at a particular season—the early winter in fact, when the fisheries are first opened. Small oysters are picked—those of twelve or eighteen months are the best—and these are carefully laid down on the prepared surface, and left to become green. Two years' sojourn is at least necessary for the purpose of greening; but three, or even four years would be better, as the oyster would then be grown to its highest state of perfection.

Some oysters take on the green tint with such rapidity as to cause a very inferior kind to be sent to market. Indeed, we are sorry to note that three-year-old oysters of all kinds are beginning to be generally sold; it is a sure sign of an unhealthy trade. "The green oyster," says the author of "The Oyster," "is, to my taste, the oyster *par excellence;* in which decision I shall doubtless be borne out by most *gourmets* whose knowledge extends to a choice of the good things of this life."

Many of the oyster-farmers of Marennes have more than one *claire*, and occasionally shift their stock, which is thought to benefit the oyster, and to improve its flavour and power of growth. Some breeders have as many as thirty *claires*, and one or two of these always empty, so as to carry on the transfer from one to another. In any case, the oysters require to be carefully watched, tended, and cleaned from accumulating mud. The oyster fattens with great rapidity when left undisturbed in the quiet waters of the pond; and, if sufficient care be taken to keep up this water supply, all will go well. For this purpose the floodgate must be well built in, and the dikes be made completely water-tight; and, moreover, it is highly necessary that an ample supply of water to cover the oysters should be at all times maintained, as, on the occasion of a sudden frost, as has before now occurred, the whole stock would be inevitably destroyed. It has been asked how, or rather why, do the oysters become green? Well, it is not exactly known how the operation is performed, and it is curious enough that the green matter which is thought to give the colour to the oyster is different from all other green substances that are known at present, whether these be animal or vegetable; but the theory which attributes the greening principle to the nature of the soil would seem to be the true one. There are those, however, who maintain that the cause of the greening is a disease of the liver, while others attribute the colour to the overgrowing of the mollusc with parasites.

The little pamphlet we have placed first on our list contains a great deal of interesting information about oyster-culture as carried on at the Isle of Ré. A portion of its contents may be usefully summarized. Dr. Kemmerer says:—

The artificial culture of the oyster may be considered to have solved an important question—namely, that the oyster continues fruitful after it is transported from its natural abode in the deep sea to the shores. This removal retards, but never hinders fecundation. The sea oyster, however, is the most prolific, as the water at a considerable depth is always tranquil, which is a favourable point in oyster-growth; but the shore oyster-banks will also be very productive, having two chances of replenishment—namely, from the parent oysters in the *parcs*, and from those currents that may float seed from banks in the sea. Muddy ground is excellent for the growth of oysters; they grow in such localities very quickly, and become saleable in a comparatively short space of time. Dry, rocky ground is not so suitable for the young oyster, as it does not find a sufficiency of food upon it, and, consequently, languishes and dies. Marl is the most esteemed; and on it the oyster is said to become perfect in form and excellent in flavour.

The culture of the oyster in the mud-ponds and in the marl—a culture which ought some day to become general—changes completely its qualities; the albumen becomes fatty, yellow or green, oily, and of an exquisite flavour. The animal and phosphorous matter increases, as does the osmozome. This oyster, when fed, becomes exquisite food. In effecting the culture of the sea-shores and of the marl-ponds, I am pursuing a practical principle of great importance, by the conversion of millions of shore oysters, squandered without profit into food for public consumption. The green oyster, to this day, has only been regarded as a luxury for the tables of the rich; but I would like to see it used as food by every one. . . . . In the marl the young oyster finds plenty of food, constant heat, and perfect quiet; wherever there is mud and sun there will be found the little molluscs, crustacea, and swimming infusoria, which are the food of the oyster.

The following is M. Coste's plan of collecting oyster spawn, to which we have already alluded. Some time before the spawning season, lay down, by means of anchors or other heavy weights, a series of fagots of branches well bound together and fastened by cords to buoys. In five or six months after this immersion the fascines may be drawn up again, either for the purpose of transferring them bodily into the *claires*, or to select from them all the young oysters suitable for transference, whilst the bundle, with those which were not ready, can be replaced in the old position. M. Coste recommends this plan with great confidence, and cites the case of M. Ackerman, commissioner of marine at Marennes, who, having sunk some pieces of wood in an oyster-bed, found that one of them, on taking it up for examination, had as many young oysters upon it as would populate a large *claire*.

The supply of the green oysters, we are told, is very large, the *claires* of Marennes furnishing an annual supply of fifty millions, representing in price the enormous amount of two millions of francs; they are distributed over the whole of France, especially over the southern portions of the country, and are sent as far as Algeria.

THE DIABLESSE IN ROMANCE.

A Heart Twice Won. By Harriet Lydia Stevenson. Two Volumes. (Newby.)

Cumworth House. By the Author of "Caste." Three Volumes. (Hurst and Blackett.)

MODERN novelists are rather fond of the lady-fiend. That fair creature, exquisitely beautiful and wicked, with infinite taste and no conscience, is always good for a sensation. The beauty of her boudoir is in delightful contrast with the wickedness of her heart. Her pretty ways, following her naughty deeds, have something of the effect of iced champagne after deviled kidneys. Perhaps it is not quite artistic to use these strong contrasts; but, in times when the imaginative faculty is even rarer than food for cattle during this present drought, critics must not be too hard upon authors. Instead of asking whether the lady-fiend has any business in a novel, it is better to inquire whose lady-fiend is best—which conceals the cloven foot most successfully in the kid-boot of Paris. Of course, *la diablesse n'a pas une queue.*

Miss Stevenson's lady-fiend is a Mrs. Churchill, whom Captain Douglas, her hero, meets in travelling to Great Malvern. She is a slightly improper person, having commenced life with a *liaison* of the vilest sort, and having twice married since; and, her second husband being alive, she does her best to make Douglas believe her a widow. The authoress's chief error is in supposing that a captain in the Guards, who had known a little of London life and been through the Crimea, would be so intensely "green" as to mistake the character of a pretty woman who allowed him extreme intimacy without introduction, who wrote him ill-spelt notes fragrant of patchouli, who could sing and play delightfully, but knew nothing of literature. Lady-novelists would do well not to trench on this dangerous ground. Miss Stevenson's dedication informs us that she is a cousin of Mr. Thackeray's: it would do her good to study the love-affair between Pendennis and the Fotheringay. The notion that a man like Captain Douglas could be taken in by Mrs. Churchill — could have thought her a guileless young widow—is perfectly absurd.

"A Heart Twice Won" is rather a flimsy novel. Its hero falls in love with the lady above-named; is extricated from his difficulties by the help of his uncle; grieves over his broken heart for a month or two; and then offers the fragments to a certain Miss Violet Maitland, whom he encounters at Nice. Plot, it will be seen, there is none; and the only attempt at describing character is Mrs. Churchill. This is not badly done. If Miss Stevenson had possessed sufficient knowledge of this wicked world to work her character properly, the result would have been more satisfactory. Perhaps the best thing in her book is the remark made by one of the characters: that a first love-fit is soon cured by a second, on homœopathic principles —*similiæ similibus curantur.* Most men will hold that Reginald Douglas's misery, when he finds out what an improper person he has fallen in love with, is a good deal exaggerated. Most readers will also think that the authoress might have spared some of her versification. But it must not be thought that the novel is not readable; its pleasant, facile style and the naturalness of its dialogue deserve cordial praise. So we shall be glad again to encounter "Thackeray's Cousin" in the realm of fiction.

There are two specimens of female naughtiness in "Cumworth House"—Mrs. Symthe and Miss Symthe. This is a new form of the ancient and honourable name of Smith. We have had Smyth, Smythe, even Smijth; but Symthe is a decided novelty. Mrs. Symthe—the name is not her own—is the wife of a certain Estcourt Maurice, a man of infinite nobleness. Beauty and wickedness are nicely blended in her. She is not so *prononcée* in her wrong-doing as Mrs. Churchill, but she is quite bad enough. Her daughter Geraldine is a good deal like her; but the author reforms that young lady, and kindly marries her to a *parti* far too good for her. Now, in the characters of mother and daughter—and especially in that of the husband—there is perceivable a feminine style of treatment. It is scarcely possible to believe in either Mrs. Symthe or Geraldine. It is simply impossible to believe in Estcourt Maurice, the authoress's fair-ideal of what is heroic and noble. Given that a man finds himself by miserable chance wedded to a wicked woman—would he, if worth anything, allow his only child to remain in her keeping? The question seems to us perfectly simple. No man could be justified in leaving his daughter with a mother who must assuredly corrupt her. Of course the novelist, omnipotent through three volumes, can reconcile readers to the anomaly by bringing the girl into a proper state of mind at last. But a man such as Estcourt Maurice is described to us could not have allowed his pity for his abandoned wife

to interfere with his justice to his daughter. Lady-novelists are too apt to create an ideal hero of so intensely forgiving a disposition that he would condone anything. Well, according to Mr. Tennyson, King Arthur forgave Guinevere; but, if he had had a daughter, he would probably not have left her at Almesbury.

The heroine of "Cumworth House" is in strong contrast with Mr. Estcourt's wife and daughter. Her name is Alisoun—a quaint poetic prænomen, which one generally finds spelt Alison, and which is probably a pleasant form of Alice. But the young lady is frequently connected with a certain garden-flower, common enough, and which country-folk sometimes call "Alison." Its true name is "Alyssum," which was conferred upon it by reason of an antique notion that it had the power of allaying anger, wherein it was probably as effectual as an amethyst-ring in preventing its wearer from being intoxicated. However, Miss Alisoun is a very charming creature, whose conception is highly creditable to the author. She is pure and loving. Hers is the most delightful character in the novel; and the reader feels that to be loved by such a woman would be a joy more exquisite than aught else conceivable. There is no creation of modern romance, or even of modern poetry, to compare with her. She is like one of Shakespeare's women—a Cordelia or a Rosalind. She is *true*—true to the heart: this is her charm. We hear nothing of her physical beauty, as we do of Geraldine's; but her moral beauty and intellectual truth are brought before the reader with a marvellous amount of power. The whole evidence of poetry is that "Love will still be lord of all;" and this loving Alisoun is only another proof of the immortal, immutable truth.

Left an orphan, Alisoun, whose father was a gentleman holding land, has no guardian save her uncle, Mr. Stonhurst, who, in some unexplained way, has greatly impaired her father's property. There is much ability in the sketch of the Stonhurst family. Stonhurst himself is Alisoun's uncle by marriage, his first wife having been her father's sister; he has since married again—a widow with one son. His stiff, frigid second wife; her son Gilbert, shrewd and keen, but at heart generous; Stonhurst's son Conway, averse from trade and resolute to be an artist; the two daughters, Sara and Agnes, the first of whom, by parochial industries, wins a clerical husband,—are all carefully drawn. But, when higher themes are to be tried, the result is not so successful. Estcourt Maurice, who was intended to be the ideal of a noble gentleman, is, as we have shown, weak and unwise. And Launcelot Sturm, whom readers are requested to acknowledge as fit husband for our charming Alisoun, has no character at all. At least, nothing is seen of the higher side of his character, though the lower is overmuch developed. He falls in love with Alisoun; he goes abroad and falls in love with Geraldine; he returns, tells Alisoun of his escapade, and apologizes; he falls in love with Geraldine again, and almost breaks his heart because he cannot have her; and then, finally, he returns to Alisoun, whom he marries. Now what guarantee is there that he will not fall in love with Geraldine, or somebody else, before the honeymoon is half over? The author might be forgiven if there were anything in this man's character of a positive nature to compensate for his amorous absurdities. But there is really nothing definite about him. Gilbert Kaird, and his half-brother Conway, and his worn-out father and irritating mother, are people we can imagine, and there is even a shadowy personality about that absurd, high-principled, unpractical Estcourt Maurice; but Launcelot Sturm is absolutely a dream—a vapour. All the reader knows about him is that he behaved very badly.

It is just as well that feminine writers of fiction should not be too fond of delineating the lady-fiend. There are such people, we know; but how should the innocent authoress have cognisance of their practices? Were a masculine writer to touch the theme there might be a tremendous apocalypse; but, while it is in feminine hands, we can only smile at their ignorance, and be thankful for their innocence.

AUTUMN OUT-OF-DOOR LITERATURE.

The Utilization of Minute Life; being Practical Studies of Insects, Crustacea, Mollusca, Worms, Polypes, Infusoria, and Sponges. By Dr. T. L. Phipson. (Groombridge and Sons.)

Wayside Weeds; or, Botanical Lessons from the Lanes and Hedgerows. With a Chapter on Classification. By Spencer Thomson, M.D. Illustrated with Engravings on Wood. (Groombridge and Sons.)

The Flora of Harrow. By J. C. Melvill. With Notices of the Birds of the Neighbourhood, by the Hon. F. C. Bridgeman and the Hon. G. O. M. Bridgeman. And of the Butterflies and Moths, by C. C. Parr and E. Heathfield. (Longman & Co.)

Our Common Insects: First Steps to Entomology. By Mrs. E. W. Cox. (Hardwicke.)

DR. PHIPSON furnishes us with a volume in which the results of scientific study and research are, he says, reduced to practice. New facts may not be brought before us; but the application of these facts with regard to food, to art and manufactures, is treated in a novel form.

Zoology and Botany have been looked upon as constituting less *practical* branches of Science than Chemistry or Astronomy; for instance, the zoological works placed in the hands of students are necessarily so full of anatomical details, details of classification, and observations upon the habits and instincts of animals, that very little space has (or could have) been afforded to notice the wonderful manner in which certain animals contribute *directly* to the welfare of mankind, and the methods by which they may be *cultivated*.

This culture the author has endeavoured, in the volume at the head of our list, to apply to inferior animals useful to man, from insects downwards to the cultivation of a mollusc or a polype, to infusoria and the sponges.

Dr. Phipson commences his subject with the Silk-producing Insects, and analyses the chemical nature of silks, from which a peculiar product is obtained, called bombic acid, and shows how the presence of wool may be detected in silken tissues by a dissolution of oxide of lead in potash, which will blacken woollen threads, because they contain a large proportion of sulphur. He advocates the necessity of careful ventilation in silk-worm establishments, where it is of the utmost importance that the air of their rooms should be perfectly pure, and warmth, the supply of which should be under control, regulated at will, as the insect, though robust in China, as a consequence of domestication, is subject to various maladies, such as atrophy, jaundice, apoplexy, diarrhœa, and dropsy.

Chapter III. treats of Colour-producing Insects, such as cochineal and gall insects, the Cynips, and the plantation of plants of the cactus tribe upon which the insect lives. The cultivation of the Nopal, a species of cactus, is carried on by Indians of extreme poverty in Mexico, "where some plantations contain upwards of 60,000 separate plants, set in straight lines, each being about four feet high, which height it is not allowed to exceed; so that the insect may be easily gathered. The flower is always carefully cut away." The poor Indians establish their Nopal plantations on cleared ground or slopes of mountains or ravines; and, after proper care, the plants maintain the cochineal for three years. Much care is required in the tedious operation of gathering the insect from the cacti. It is performed with a squirrel's tail by the Indian women, who, for this purpose, squat down for hours together beside one plant. Seventy thousand dried insects weigh on an average one pound.

Chapter IV. is devoted to Insects producing Wax, Resin, Honey, and Manna; the next speaks of Insects employed in Medicine, or as food, and other insects useful to man; Chapter VI. treats of Crustacea, Chapter VII. of Mollusca, in which, at p. 152, we have the plate of a snail-garden, near Ulm, in Germany. The breeding or cultivation of snails as an article of human food, or a choice table delicacy, is no modern innovation. Amongst the "Scriptores de Re Rustica," published by Schneider, at Leipzig, in 1794, will be found the text of Terentius Varro, admirably illustrated by the editor. Varro there speaks of the enormous size to which snails may be brought by culture. According to Pliny these large fat snails were considered a great luxury and a very favourite dish amongst Roman epicures, who, from his account, appear to have cultivated the delicious morsel in gardens, similar to those now seen in several parts of the Continent, where many snails are sought for and bred as articles of food or medicine. Among the terrestrial species *Helix Pomatia*, or the apple-snail, known in France as the *grand escargot*, is cultivated to a considerable extent, and is eaten, principally during Lent, in France, Belgium, Germany, and other parts of Europe. Indeed, the taste for this animal has so much increased lately that the oyster trade suffered last year in France, in consequence of the number of these snails brought into the markets. *Helix Pomatia* is not so common in England as on the Continent, though it is found abundantly near Dorking. Of worms, the leech alone appears to be of use to man; but, for scientific investigation and beauty in a water-vivary, we have the lovely Serpulæ and Sabellæ, the latter in soft and calcareous tubes, both wonderful in colour and construction. More curious still, and but rarely seen, even in very choice marine vivaries, is the splendid Infundibulum worm, expanding its feathery gills to the size of a crown-piece, and the less rare, but brilliant little Gold Comb, in its funnel-shape tube, like finest paper. There are a host of others no less beautiful, the utilization of which, or their use in the great economy of nature, is still unknown to us.

Chapter IX., on Polypes, brings us to the Coral Fishery and the Coralliculture of the French.

Donati has thrown much light upon the organization of the coral stem, and the anatomy of the gelatinous tunic which covers it, and places each of its polypes, as it were, in connexion one with the other. It will be sufficient here to state that the coral polypes produce the calcareous portion of their polypidom, and also secrete this gelatinous covering, which is of a very complicated nature. The latter, when the coral is freshly taken from the water, is easily peeled off; but, if allowed to dry on the stem, it becomes very difficult to detach it. This cortex, or covering, presents numerous tubercles or little eminences, each of which contains in its cavity a white, soft, transparent polype, having eight tentacles. As soon as the coral is withdrawn from the water, each polype immediately contracts itself, and withdraws into its cavity. . . . . The calcareous stem of these animals is formed like the shell of the oyster and other mollusca, *i. e.*, by the secretion of a liquid containing a large amount of lime, and which appears to be produced by certain glands, situated at the basis of the polype's tentacles. In the Red Sea and the Mediterranean coral is seen adhering to the rocks in all directions. The greatest height that a stem of coral, with its branches, will attain in the Mediterranean is about a foot and a half, its greatest diameter being about eight lines. At each extremity of the coast of Algiers very fine coral is found. The annual production by coral fisheries in these parts is estimated at about £100,000 sterling. But the French are complaining, at the present moment, of the negligent manner in which their Mediterranean coral production is carried on. It should yield, according to competent authorities, *a nett profit of* £250,000 *sterling per annum*. Spallanzani's observations have taught us that coral grows very rapidly, and is quickly reproduced; so that, in a few years' time, a locality which has been deprived of its coral by repeated fisheries is again re-peopled with this lucrative polype. It has also been remarked that a branch of coral, detached from the stem and thrown into the sea, soon fixes itself to the rocks, and grows into a fine specimen; and it has not unfrequently been noticed that different objects which have been thrown into the sea near any clusters of coral are sure to be covered with these polypes in the course of a few months.

These important facts seem to indicate the possibility of transporting or transplanting the coral by shoots, as we do with some of our rarer vegetable productions. They teach us also that the coral fishers ought to be compelled by law to throw back into the sea the younger branches of whatever coral they take away; for these young shoots are nearly valueless to them, and would serve to replenish in a short time places exhausted of their coral by constant fishing. Like other polypes, the coral polype is reproduced by eggs, by buds, and by self-division. It multiplies rapidly, and its stem will go on ramifying, like the stem of a tree, for an indefinite period of time. All these data should be borne in mind by those who would undertake to cultivate coral, a branch of industry which has lately been seriously thought of, and to which the French have already given the name of *Coralliculture*; and, if it be impossible to grow coral upon our English coasts, there are, spread over the globe, hundreds of English possessions where *Coralliculture* might become an unexpected source of wealth.

Of the Infusoria and other animalcules we have not space to speak. The microscope is opening our physical and mental vision to such wonders, both in fossil and living Diatomaceæ, Foraminifera, &c., that the perusal of the book cannot fail to be interesting to the student, though the objects themselves must be seen to be rightly appreciated or understood. Many valuable hints are given, and much solid information is put together, in so pleasant and easy a form that we can strongly recommend Dr. Phipson's volume to our readers.

"Wayside Weeds" is a capital book, and ought to be in every tourist's pocket. The arrangement of the plants one picks in handfuls is a bright thought to carry out! A few quires of blotting-paper, filled from time to time as the plants are gathered, and classed according to the "handfuls" described and explained by Dr. Thomson in his charming roadside lessons, will do more to improve and fill the mind with the delights of useful knowledge than a vain attempt to master the difficulties of a science the hard names of which cast so many back from its threshold. Who does not know the first easy paths which guide us into Flora's realms?—

> "The cowslip, crocus, columbine,
> The violet, and the snowdrop fine,
> The orchis 'neath the hawthorn-tree,
> The blue-bell and anemone,
> The wild rose, eglantine, and daisy."

"We know them all," adds the doctor, "and many another, without any teaching . . . . and this name-knowledge is no despicable foundation for our future botanical education—a far better one than we can find for any other science; sounder too, for it has not only a place in the head, but in the heart; dull and dead must that heart be that greets not warmly the old friends of our first wee toddling days."

To the compilers of "The Flora of Harrow" "Wayside Weeds" would, it seems to us, be a valuable acquisition; and we heartily recommend it to those students at Harrow who have just published the result of their well-chosen explorations. Many pleasant walks and busy happy hours the "Harrow botanists" have doubtless enjoyed while collecting specimens, and in the scientific arrangement of their Fauna and Flora. Their example, it is to be hoped, will be followed by others who have not the difficulty to contend with of "little or no variety of soil, and little or no variety of cultivation." The enterprise is therefore the more commendable; and we heartily congratulate our young naturalists upon the success of their labours, seeing in them the nucleus of kindred volumes to those by White, Davy, and St. John.

"Our Common Insects" is another aid to that most desirable study of the objects which Nature presents to us in every-day life with which it would be well if we were more familiar. All these four inductive books will prove of interest to the general reader. Such little volumes are more readily carried in the travelling-knapsack than a novel, and the pleasure to be derived from them is at all times more lasting and satisfactory.

NOTICES.

A Collection of Right Merrie Garlands for North-Country Anglers. Edited by Joseph Crawhall, and continued to this present year. (Newcastle-upon-Tyne: Rutland. Pp. 312.)—THESE "right merrie garlands" were commenced in 1817, and, with occasional slips, have been continued to the present time. They were originally issued separately in broad-sheets, and afterwards collectively, in 1836. The present edition is the third, bringing the Garlands down to the current year. The songs are, for the most part, in the Northumbrian dialect, and the best of them have been the joint productions of Thomas Doubleday and Robert Roxby. Few people would be able to distinguish them from the Scotch; and, in spirit and feeling, as well as in step and tune, the songs smack of the land of Burns much more fully than they do of anything on this side the Tweed. This sweet lilting habit of the writers we have named, coupled with the fact that Bewick himself furnished the illustrations, soon made the North-Country Garlands popular; and Mr. Joseph Crawhall has done the angling fraternity great service in issuing an edition so complete and so handsomely got up. The music is attached to almost every song, and the illustrations are just the kind one delights to see in such a publication. The "Coquet" is the main inspiration of the writers; and a finer trout-stream does not exist in England. It is to be hoped that it is a little more carefully protected than it was; but, for half-a-dozen years, poachers, chiefly from Newcastle, took out of the Coquet, *during the close season*, many tons of fish weekly. All this spoil was sent over to Paris; and, as the trout averaged more than one shilling per pound, it will readily be imagined how keenly the plunder went on. The "Fisher's Garland" is a credit to the Newcastle press, and will soon be in the hands of every true fisher.

> "Then luck be to the angler lads,
> Luck to the rod and line;
> Wi' morn's first beam we'll wade the stream,
> The night we'll wet wi' wine."

Waifs and Strays of North-Humber History. By the Rev. Scott F. Surtees, Rector of Sprotburgh, Yorkshire. (J. R. Smith. Pp. 107.)—"THE mapping out each field, and wood, and road, and farmstead," says the reverend author, "and jotting down the name by which each is familiarly known in the Ordnance Survey and the little parochial map, now deposited in the parish archives, point out to the antiquary a new path of investigation." Taking, then, local nomenclature and local tradition as a basis for his inquiry, he enters into a consideration of the circumstances under which Hengist and his brother Horsa came to Britain; and, taking Doncaster and the names of places in its immediate vicinity, chiefly those to the west and south, it is astonishing to how great an extent he is able to confirm, in their leading features, the narratives of our ancient chroniclers. Nennius, Bede, the Anglo-Saxon chronicle, Layamon, in his version of the "Brut," Hollingshed, Geoffrey of Monmouth, Hector Boece, and, lastly, the "Buik of the Chroniclis of Scotland," recently published by the direction of the Master of the Rolls, "under the express editorship of the late lamented Mr. Turnbull," are all collated and found to point to the district already indicated as "the location of Hengist." In the same way—that is, with the aid of local nomenclature and frequent reference to the chroniclers—our author is able to fix still more unerringly the site of "the last battle of Hengist and his burial-place." The subject is continued in the third chapter; and the fourth is devoted to "Modern Topography and Local Relics." We are scarcely able to say whether Mr. Surtees is right in all his deductions; but there is an amount of research and scholarship in his little volume which will commend it to all true antiquaries; and he is certainly the first to set forth in a systematized form how much may be done in this branch of study.

Testimonies concerning Slavery. By M. D. Conway, a native of Virginia. (Chapman and Hall. Pp. 140.)—THE testimony of Mr. Conway has peculiar weight. He was born in Virginia, of slave-holding parents, and was taught to look upon the peculiar institution as a matter of course. But, when the seed which the old Quaker patriarch of Sandy Spring had dropped into his young mind began to ripen, he left house and home for the sake of his principles, and, with his staff in his hand, went forth into the free land of the North. Sandy Spring in Maryland was noted for its fruitful fields and highly-cultivated farms, and the whole district was truly an oasis in the desert. The homes were cheerful and the labourers were happy; and our author felt, the moment his foot touched the Quaker district, "as a wayfarer might feel on leaving hot sands for a pleasant grove with singing-birds and fountains." After a long talk with the patriarch, one day, about the palpable superiority of Sandy Spring to the surrounding country, and guessing vainly at the cause thereof, as a last venture, Mr. Conway said, "Doubtless you Friends have certain habits of thrift and industry which others have not." "Perhaps it is so," said the old man, gravely; after which followed a long silence, "which," says our author, "I felt belonged to him, and was for him to break. Then he turned his eyes—at once luminous and keen—full upon me and said: 'But there is one habit of our people to which thee will find, should thee search into it, is to be traced all the improved condition of our lands and our homes: that is *the habit of taking care that our labourers get just wages for their work. No slave has touched any sod in any field of Sandy Spring.*'" We have been particular to quote this passage, because, so far as the political economy of the slavery question goes, it sums up the whole thing in a word. Mr. Conway's own experiences are of a very interesting kind; and there will be found in the volume an amount of information, as regards the social life both of the North and of the South, which the English public would do well to master. The book is dedicated to Peter Alfred Taylor, Esq., M.P.

The Works of Oliver Goldsmith, Illustrated. With Life by John Francis Waller, LL.D. (Cassell & Co.)—*Dalziel's Illustrated Goldsmith.* With a Sketch of the Life of Oliver Goldsmith by W. H. Dulcken, Ph.D. (Ward and Lock.)—Two elegant volumes, each of very similar contents in point of selection, and both containing "The Vicar of Wakefield," "The Deserted Village," "The Traveller," "The Haunch of Venison," "Retaliation," and other poems; "She Stoops to Conquer," and "The Good-Natured Man;" to which the latter also adds "The Captivity," an oratorio, which enables Mr. G. J. Pinwell, by whom the whole of the hundred designs which illustrate the volume were made, to give us two vignettes, much in the style of Blake, of the Jewish captivity by the waters of Babylon. The whole of these characteristic designs have been transferred to wood by the brothers Dalziel in so masterly a style that this "Illustrated Goldsmith" claims to rank with the most beautiful productions of the day. Messrs. Cassell's "Goldsmith" is equally rich in illustrations, and numbers, in all, one hundred and eight designs of various artists, executed by Cooper, Linton, Thomas, and other wood-engravers of equal standing. Both volumes are a marvel of cheapness.

On the Early History of Leeds, in Yorkshire, and on some Questions of Præhistoric Archæology agitated at the Present Time. A Lecture read before the Philosophical and Literary Society of Leeds, April 19, 1864, and before the Geological and Polytechnic Society of the West Riding of Yorkshire, at Huddersfield, June 16, 1864. By Thomas Wright, M.A., F.S.A., F.E.S., Hon. M.R.S.L., &c., Corresponding Member of the Imperial Institute of France. (Leeds: Baines and Sons. Pp. 30.) — AFTER glancing at the so-called stone period, the bronze period—which latter he thinks belongs generally to the Roman time—and the iron period, Mr. Wright concludes his interesting and able lecture by a sketch of Leeds and its neighbourhood in the days of the Anglo-Saxons. He thinks that, "at the time of the Norman Conquest, the people of Leeds probably distinguished themselves by their resistance to the invaders, and thus merited their full share of the vengeance of the Conqueror, for much of the country around is set down in Domesday as then *waste*."

Cornish's Guide to Birmingham and its Manufactories. With Numerous Illustrations and Map. —THIS is the town in which John Baskerville spent a fortune in founding his famous types, in which Priestley studied, and John Wyatt made the first cotton-thread ever spun by machinery. Here Watt lived and invented, and his countryman, William Murdoch, constructed at Soho the first locomotive engine, and taught the world the wonderful invention of gas-lighting. Whatever is worth knowing about this busy "metropolis of the Midland Counties" will be found in Cornish's "Guide to Birmingham," and we heartily commend it to our readers.

The Child's Commentator on the Holy Scriptures. By Ingram Cobbin, M.A. A New Edition, Revised and Corrected. (Jackson, Walford, and Hodder. Pp. 572.) — THIS thick handsome volume is profusely illustrated with woodcuts and chromo-lithographs, and has its value enhanced by an excellent index. The author's plan is to

explain certain portions of the Bible—chiefly the narrative parts—"in a plain and simple way, incorporating much that is instructive and interesting, so that young people may become familiar with many of those customs which, being Oriental, are quite strange and unintelligible, not only to them, but also to those of more mature years."

A Discussion among upwards of 250 *Theological Inquirers, Clergymen, Dissenting Ministers, and Laymen on the Unity, Duality, and Trinity of the Godhead; with Digressions on the Creation, Fall, Incarnation, Atonement, Resurrection, Infallibility of the Scriptures, Inspiration, Miracles, Future Punishments, Revision of the Bible, &c.* The Press corrected by Rawley, the Reporter of the Discussion. (Trübner & Co. Pp. 205.)—WHERE this tremendous discussion was carried on, and who the men really are who talk, we have no means of knowing; for we find, in the first page, "Chairman speaking when Reporter entered;" and, after several dashes, the book opens with—"and, as I intimated to your Committee of Management," &c. The title, however, is so exhaustive that it would be absurd in us to attempt any elucidation of the text.

The Hopley Divorce Case: A Cry to the Leading Nation of the World for Justice, and for the Souls of my Wife and Children. Dedicated to Lord Brougham. Thomas Hopley. (Published by the said Thomas Hopley at 147, Fleet Street. Pp. 132.)—THE title-page of this pamphlet is emphasized after the manner of a street-poster or a play-bill, and strikes us on first glancing at it with the serio-comic feeling we all experience on reading any sensational announcements. The text of the book, however, is of too grave and even melancholy a kind to leave one long in a gay humour. Mr. Hopley goes through his unfortunate case with great lucidity, and would have us believe that he is a miserably ill-used man.

WE have received from Messrs. Longman & Co. Part XI. of the *People's Edition of Macaulay's History of England*; from Mr. Hotten, the *Second Series of the Biglow Papers*, the pungent humour of which needs no mention at our hands; from Messrs. J. Heaton and Sons, the *Biblical Liturgy*, a form of Common Prayer, according to the use of the Christian Church assembling in Mansfield Road, Nottingham, compiled by Samuel Cox, and Part IV. of *Sermons*, by Henry Ward Beecher.—Messrs. Hatchard & Co. send us *Youth and Age* and the *Fisherman's Family*, both by Miss Stapleton. Both these pious effusions are in rhyme; but the rhyme is often rugged and occasionally disappears altogether. The duties of the critic at times compel him to be cruel, but he need not, on that account, be savage. We will therefore cull one of the smoothest stanzas which first comes to hand, and submit it to our readers as a specimen of Miss Stapleton's manner.

> "The scene of this narrative
> Is on the Sussex coast—
> A sea-side place that now is gay
> And doth a season boast.
> But, sixty years ago, it was
> A village poor and small—
> The clergyman and the doctor
> The head and chief of all."

—Mr. Tweedie sends us the current number of *Young England*, and Messrs. Mozley *Events of the Month*. We have received also the September number of the *British Army and Navy Review*, in which Captain C. C. Chesney continues his review of "Lee's Campaigns in Defence of Richmond." The article on "Fortification and its Uses" is specially addressed to the Volunteers.

PUBLICATIONS OF THE WEEK.

ABOUT IN THE WORLD: ESSAYS. By the Author of "The Gentle Life." New Edition. Sm. cr. 8vo. *Low*. 6s.

ALLINGHAM BALLAD BOOK. Selection of the Choicest British Ballads. Edited by William Allingham. (Golden Treasury Series.) Fcap. 8vo., pp. xlvii—393. *Macmillan*. 4s. 6d.

ARNOLD (Thomas Kerchever, M.A.) Practical Introduction to Latin Verse Composition. Fourth Edition, considerably revised. 12mo., pp. xii—178. *Rivingtons*.

AUSTIN (R. C.) Youth's Progressive Spelling and Reading Book. 12mo., pp. 168. *Tripcony*. 1s.

BEATTIE and GOLDSMITH. The Poetical Works of James Beattie and the Poems and Plays of Oliver Goldsmith. Illustrated. Fcap. 8vo., pp. xx—458. *Nimmo*. 3s. 6d.

BOGATZKY'S GOLDEN TREASURY FOR THE CHILDREN OF GOD. New Edition. Fcap. 8vo. *Tegg*. 2s. 6d.

BRIGHT (William, M.A.) Ancient Collects and other Prayers, Selected for Devotional Use from various Rituals. With an Appendix on the Collects in the Prayer-Book. Third Edition. Fcap. 8vo., pp. xvi—238. *J. H. and J. Parker*. 5s.

BULLOCK (Rev. Charles). Sin and its Cure; or, the Syrian Leper. A Chapter of Bible History Expanded. Third Thousand. Fcap. 8vo., cl. sd., pp. viii—194. *Macintosh*. 1s. 6d.

CÆSAR'S COMMENTARIES ON THE GALLIC WAR. Book I. By Dr. Kenny. Second Edition. 18mo., cl. lp. *Longman*. 1s.

COBBIN (Ingram, M.A.) Child's Commentator on the Holy Scriptures. New Edition, revised and corrected. With Engravings. Sq. cr. 8vo., pp. 572. *Jackson, Walford, and Hodder*. 7s. 6d.

COBBOLD (T. Spencer, M.D., F.R.S.) Entozoa: an Introduction to the Study of Helminthology, with reference more particularly to the Internal Parasites of Man. With Engravings. Imp. 8vo., pp. xxvii—480. *Groombridge*. 31s. 6d.

DAWSON (Flora). Princes, Public Men, and Pretty Women: Episodes in Real Life. Two Volumes. Post 8vo., pp. xii—667. *Bentley*. 21s.

DEFOE (Daniel). Life and Strange Surprising Adventures of Robinson Crusoe, of York, Mariner, as related by Himself. With upwards of 100 Illustrations. Cr. 4to., pp. xiv—394. *Cassell*. 7s. 6d.

EXAMINATION PAPERS FOR THE CIVIL SERVICE OF INDIA. July, 1864. Fol., sd., pp. 43. *Stanford*. 2s. 6d.

FREER (Martha W.) Married Life of Anne of Austria and Don Sebastian, King of Portugal. Two Volumes. 8vo. *Tinsley*. 30s.

GILBERT THE ADVENTURER; OR, TRAVELS IN DISTANT COUNTRIES. Edited by Peter Parley. New Edition, with Illustrations. Fcap. 8vo., pp. iv—316. *Routledge*. 2s.

GOADBY (Edwin). Newburys; their Opinions and Fortunes: a Glimpse of Baptists in England Two Centuries ago. 18mo., pp. vi—280. *Marlborough*. 2s. 6d.

GRANDINEAU (F.) Petit Précepteur; or, First Step to French Conversation, For the Use of Young Beginners. Thirtieth Edition. 16mo., pp. 176. *Jackson, Walford, and Hodder*. 3s.

GREAT EXCURSION TRAIN (The) to the International Exhibition. By Ruhama. With a Preface by Miss Whately. Sq. cr. 8vo., cl. sd., pp. iv—65. *Binns and Goodwin*. 1s. 6d.

HAAS (John). Easy and Practical Introduction to the French Language. Eleventh Edition. (Darton and Hodge's School Library). 18mo., cl., sd., pp. iv—140. *Darton and Hodge*. 1s.

HAAS (John). Easy and Practical Introduction to the French Language. Second Course. Third Edition. 18mo., cl. sd., pp. 161. *Darton and Hodge*. 1s.

HARRIS (Rev. James). Graduated Exercises in Arithmetic and Mensuration. With Answers. 12mo. Chester: *Healey*. *Longman*. 3s.; Answers separate, 9d.

HERBERT (Daniel). Hymns and Poems, Evangelical, Doctrinal, and Experimental. Designed only for the Poor, Needy, Helpless, Self-emptied Sinner, who knows feelingly the plague of his own heart, and rejoices in a Salvation without money and without price; and that all is of grace from first to last. Vol. 3. 18mo., pp. 38. *Palmer*. 3s. 6d.

HOLDEN. Foliorum Silvula. Part the Second. Being Select Passages for Translation into Latin Lyric and Iambic Verse. Edited, with Notes, by the Rev. Hubert Ashton Holden, LL.D. Third Edition. Cr. 8vo., pp. xii—308. Cambridge: *Deighton, Bell, & Co. Bell and Daldy*. 5s.

HOLDEN. Foliorum Silvula. Part the Third. Being Select Passages for Translation into Greek Verse. Edited with Notes by the Rev. Hubert Ashton Holden, LL.D. Third Edition. Cr. 8vo., pp. xvii—637. Cambridge: *Deighton, Bell, & Co. Bell and Daldy*. 8s.

ILLSEY (Isaac). Notes on the Usefulness of British Birds. Fcap. 8vo., cl. sd., pp. 68. *Collingridge*. 1s.

INCOGNITA. A Tale of Love and Passion. Fcap. 8vo., bds., pp. 312. *Vickers*. 2s.

INGRAM (Thomas Dunbar). Compensation to Land and House Owners: being a Treatise on the Law of the Compensation for Interest in Lands, &c., payable by Railway and other Public Companies, with an Appendix of Forms and Statutes. Roy. 12mo., pp. xii—290. *Butterworths*. 10s.

JOHNSON (Cuthbert W., F.R.S.) Our House and Garden. What we See and what we do not See in them. Second Edition. 12mo., pp. vii—287. *Ridgway*. 5s.

JONES'S MERCANTILE DIRECTORY OF THE IRON DISTRICT OF SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE, consisting of Wolverhampton, Bilston, Bloxwich, Brierley Hill, Bromsgrove, Cradley Heath, &c. Specially adapted for the Use of the Mercantile Community both at Home and Abroad. Cr. 8vo., pp. 535. *Jones and Proud*. 4s.

LANKESTER (Charlotte). Marian and her Pupils: a Story for Girls. With Illustrations. New Edition. Fcap. 8vo., pp. 300. 2s. 6d.

LE PAGE (M.) Finishing Exercises in French Conversation: being a Key to L'Echo de Paris. Second Edition. Fcap. 8vo., sd. *Virtue*. 1s.

M'LAREN (Alexander, B.A.) Counsels for the Study and the Life. Cr. 8vo., sd., pp. 25. Leeds: *Hamer. Simpkin*. 6d.

MARSHALL (Emma). Brothers and Sisters; or, True of Heart. A Story of Home-Life. Second Edition. Fcap. 8vo., pp. 334. *Seeleys*. 5s.

MURRAY'S HANDBOOK FOR VISITORS TO PARIS; containing a Description of the most Remarkable Objects in Paris, with General Advice and Information for English Travellers in that Metropolis, and on the Way to It. With Map and Plans. Fcap. 8vo., pp. iv—259. *Murray*. 5s.

MURRAY'S KNAPSACK GUIDE TO NORWAY. With a Map. Fcap. 8vo., pp. xxviii—196. *Murray*. 5s.

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MISCELLANEA.

A LETTER from Mr. John A. Tinne of Briarley, near Liverpool, which appeared in the *Times* of Monday last, gives an account of the unsuccessful issue of the Dutch ladies' expedition on the White Nile in the Soudan, mention of which has been made from time to time in THE READER during the last twelve months. The ladies state that, owing to the shameful manner in which they have been treated by the native merchants, the expedition has been compelled to return to Khartum without accomplishing its intended object—that of reaching the country of the Niam-Niams. They complain particularly of the conduct of Biselli and Ali Anmouri, two merchants, and proprietors of zeribas, or stations, on the White Nile, who appear to wield absolute and unquestioned despotism over large districts, no less than of that of Moussa Pasha, Governor of the Soudan. As the opening up of the newly-discovered and exceedingly fertile districts of the White Nile cannot fail to be of the utmost importance to the mercantile world, this hostility on the part of the native merchants and governors is a matter of great regret, and it is therefore much to be deplored that our Government has abolished the English Consulate at Soudan.

DR. MIANI has been visiting Gotha, Leipzig, and Berlin, and making preparations for another expedition to explore the sources of the Nile and the countries of the Lake district. A public subscription has been opened for the purpose among the merchants of Trieste, from whence the expedition will start, and also amongst those of Venice and Alexandria. The Emperor of Austria has given the doctor one hundred rifles, with sufficient ammunition, stores—shoes and articles of clothing—to meet all the requirements of Miani's escort. It is hoped that the Austrian parliament will grant the 6000 florins towards the expenses of the expedition, which it refused last year to the government. The Roman Catholic Mission-house at Khartum will be the base of Dr. Miani's operations; and a wealthy German resident of that town has offered to bear one-fourth of the expenses of the expedition, and to accompany it in the character of botanist. The botanical gardens attached to the Mission-house at Khartum are very extensive, and are planted with all kinds of tropical plants and trees. M. Kirchner, one of the chief missionaries, has been engaged for some years in preparing a dictionary of the Bari language, and various other languages spoken on the banks of the White Nile, all of which bear some affinity to it, and to the language of the Wakaufi, spoken in Equatorial Africa.

THAT successful adventurer Theodore, the sable emperor of Abyssinia, some time since demanded, through the English Consul at Massowa, the hand of her Majesty Queen Victoria in marriage; and, because no favourable answer has been received, he has imprisoned the Consul. M. Lejean, the French Consul, who for some other cause was a prisoner on parole, has been expelled the country by an imperial decree, and has lately reached Alexandria. He states that the English Consul is not only in prison, but is kept in irons.

ACCORDING to *Galignani*, the French exploring expedition to trace the course of the Niger, under MM. Mage and Quentin, had reached Segou. Lieutenant Mage is well-known from his previous explorations of 1859 and 1860.

THE *Stationer* of this month goes fully into the merits of the recent copyright decision of Vice-Chancellor Kindersley in the important case of Low *v.* Routledge (to which we called attention in THE READER of the 23rd of July), in answer to the objections of two of our contemporaries. "We cannot sympathize," says the writer, "with the main objection raised to it, that 'it is unfair because it gives an American

author an advantage over an English one.' It is true that an English author cannot take up a residence so easily, and at so small an amount of inconvenience in the 'States,' as a native of Boston, Mass., can do in *British* America; but this is a geographical 'circumstance' against us more than counterbalanced by the fact that Boston publishers themselves recognise arrangements made with English authors, and do not require them to cross the Atlantic to secure their rights (which, according to an American law-book before us—'Bouvier's Institutes'—they could do, exactly as it is now decided can be done by American authors on this side); and we may well ask why Mr. Longfellow should not be able to make as safe an arrangement with an English publisher as Mr. Tennyson makes with his Boston publishers, Messrs. Ticknor, who publish 'Enoch Arden' as unmolested as the Messrs. Moxon do in Dover Street. Another, but subordinate objection is made, that 'an English author risks his own copyright if he publishes abroad first. This does not touch the present question; at the same time it may be worth correcting the dictum. The English author's right we apprehend to be a natural one, and not acquired by any legal procedure. The entry at Stationers' Hall is in itself not a power, only a *proof*, necessary to produce in Court. Some years back the plea urged against the copyright of some of Samuel Lover's songs—*that he first published them in America* during his sojourn in that country—was overruled. We believe that no work of an English author can ever be published here against his consent, or unless he has at some time been a party to such publication. Some of our most prominent authors have, to our own knowledge, published works abroad that have not yet appeared in this country."

THE admirable article on Wordsworth in the *North British Review* is said to be by Professor Shairp of St. Andrews, himself a poet of the meditative type, and a great lover of Tweedside and its ballads.

MR. MAX MÜLLER has a funny mistake in his article on the Language, &c., of Sleswig-Holstein in the current number of *Macmillan*. He remarks (p. 359) that, "Instead of saying the sun has set, the Holsteiners, fond as they are of their *beer*, particularly in the evening after a hard day's work, say "de Sünn geiht to *Beer*," the sun goes to *beer*." We need hardly say that the *Beer* is our English *bier*, Anglo-Saxon *bær*, a bier, a portable bed, Fr. *wythig-bere*, a withy bed, &c.

THE Great Bed of Ware has been purchased, it is said, for Mr. Charles Dickens for £100. The sale took place at the Saracen's Head Inn, Ware, on the 6th inst., and Mr. H. Willmott, of the Railway Tavern, Hertford, offered £100 at the first bidding, at which sum it was knocked down without opposition. We believe Sir Frederick Roe possesses the old oak bedstead which was sold some years ago at Leicester as that upon which Richard the Third had slept previous to the battle of Bosworth Field. These Shakespearian relics should have their whereabouts recorded.

"THE Psychonomy of the Hand," by means of which it is attempted to prove the hand to be an index of moral, intellectual, and social development, is the title of a new work by Mr. Richard Beamish, F.R.S., the well-known compiler of "The Life of Sir Marc Isambard Brunel." The Psychonomy of the Hand is a development of the system of M. D'Arpentigny, and contains a notice of the chiromancic theory of M. Desbarrolles. The work will be published by Mr. Pitman of Paternoster Row.

MESSRS. SEELEY, JACKSON, AND HALLIDAY will publish during the approaching season:—An illustrated edition of the Bishop of Oxford's volume of allegories, called "Agathos," of which nearly 50,000 copies have been sold; "Four Sermons preached before the University of Cambridge," by the Bishop of Melbourne; "The Lawgiver: a Sketch of the Life of Moses," by Mrs. Webb, author of "Naomi," &c.; "Among the Mountains: an Account of the Residence of an Officer's Family at Montreux during the Crimean War," mainly a narrative of facts, but thrown into the form of a story; a volume on "Temper," first published about thirty years ago, reprinted, with a preface by the Rev. J. C. Ryle; "The Little Fox: an Account of the Discovery of the Fate of Sir John Franklin," written for children, by permission of Captain M'Clintock.

MESSRS. SAMPSON LOW & Co. announce as just ready a popular half-crown edition of Mr. Wilkie Collins's "Woman in White;" a new novel, in two volumes, by Mrs. Grey, entitled "Lion-Hearted;" and "Bee-Keeping," by the *Times* Bee-master.

MESSRS. MAXWELL announce as in the press—"The Doctor's Wife," by Miss Braddon; and a new novel, "Barry O'Byrne," by the author of "Sir Victor's Choice." They have also in the press, "Historic Byeways," by Sir C. F. Lascelles Wraxall; "Royal Favourites," by Sutherland Menzies; "The Bee-Hunter," by Gustave Aimard; "Eccentric Personages," by Dr. William Russell; and "Singed Moths," by C. J. Collins.

MR. LORENZO SABINE of Boston, U.S., has just completed his "Biographical Sketches of Loyalists of the American Revolution," in two volumes octavo.

AMONGST American publications in the press we notice "A Political History of the Rebellion," by the Hon. Ed. McPherson, Clerk of the House of Representatives, and Mr. Kirke's "Down in Tennessee," in which he will give some account of his recent mysterious mission to Richmond, accompanied by Colonel Jacques. Mr. Kirke is known from his previous books, "Among the Pines" and "My Southern Friends." "The Sailor Boy," a life of the Federal Admiral Foote, and Major Pennyman's "Boy-Life of General Sedgwick" are both on the eve of publication.

THE imposition at New York and other American ports on foreign newspapers, amounting to all but a prohibition, has induced some spirited Transatlantic publishers to announce reprints of *All the Year Round*, the *Illustrated London News*, and *Punch*.

A NEW edition of Cardinal Baronius's "Annales Ecclesiastici," with the continuations of Raynaldus and Laderchius, brought down to the present time by Father Theiner of the Oratory, is now publishing at Bar-le-Duc, in 4to., printed in double columns, each volume averaging some 650 pages. Augustin Theiner published some years ago a continuation to Gallandi's work "De Vetustis Canonum Collectionibus," which was very well received by the learned.

THE first volume of the Abbé Bareille's new French translation of the entire works of St. Chrysostom, to be completed in twenty volumes, has been published at Angers.

M. AMÉDÉE PICHOT has translated Thackeray's "Morgiana, ou le Chevalier Désherité," to which he has prefixed a biographical and literary introduction.

MRS. WARNER'S "Wide, Wide World" has just reached a sixth edition in French.

THE *Literarisches Centralblatt* (No. 37) contains reviews of the "Geological Survey of Canada" and of Dr. Scherzer's Sketches of Tropical America ("Aus dem Natur- und Völkerleben im tropischen America");—the *Revue de Théologie* (ii., 2), Coquerel's "Le Christianisme et le Théisme" and Colenso's fourth volume, the latter by Coquerel himself;—the *Beilage zur Allgemeinen Zeitung* (No. 240) has a letter on Robin Hood and an article on the Yelverton case;—*Westermann's Monatshefte* (No. 96), "Cromwell's Protectorat, von H. Floto;" "Das Anwachsen der Londoner Bevölkerung;"—the *Ausland* (No. 36), "Die Entdeckung von Anilinfarben," Burton's "Equatorial Africa," and Sir William Logan's "Geology of Canada;"—*Die Natur* (No. 35), Yates's "Art of Weaving among the Ancients;"—*Jahn's Jahrbücher* (No. 7) reviews "Beck's MSS. of the Satyricon of Petronius Arbiter;"—the *Oesterreichisches Wochenblatt* (No. 34), Bleek's "Grammar of South-African Languages;"—and the *Nordische Revue* (Nos. 1 & 2), Dyce's edition of "Shakespeare," Clayton's "Queens of Song," Kingsley's "The Roman and the Teuton," Martin's "Statesman's Year-Book," and "Shakespeare Jest-Books."

ALPINE-CLIMBERS will welcome, as the most important book of its class, "Aus den Tauern—Berg- und Gletscher-Reisen in den österreichischen Hochalpen," by Dr. Anton von Ruthner, the President of the Austrian Alpenvereins.

MR. BROCKHAUS is publishing in parts a new and greatly improved edition of his celebrated "Allgemeine Deutsche Real-Encyklopädie für die gebildeten Stände: Conversations-Lexikon"—to be completed in 150 parts, forming fifteen volumes, 8vo.

BÜCHNER'S "Kraft und Stoff," Mr. Collingwood's translation of which, under the title of "Matter and Force," was reviewed in No. 73 of THE READER, has already reached its eighth edition in Germany.

ACCORDING to the *Börsenblatt*, all possible means are adopted on the Austrian frontier to prevent Italian papers, books, prints, and photographs which have any bearing upon the present state of Italy or Venice from passing into the Austrian dominions.

THE octogenarian Aug. Böckh announces a work upon the "Astronomy of the Ancients."

CORRESPONDENCE.

[The Editor does not hold himself responsible for opinions entertained by Correspondents. Anonymous communications cannot be inserted.]

TENNYSON'S "NORTHERN FARMER."

To the Editor of THE READER.

Tooting, S.

SIR,—Will you allow me to reply to the letter of "M.A. Cantab.," which appeared in the last number of THE READER? The writer asks for some information respecting the dialect of Mr. Tennyson's new poem "The Northern Farmer."

Mr. Tennyson is the son of a clergyman who resided at Great Grimsby; and he received his early education at the grammar-school at Louth. Both of these towns are in the north-eastern quarter of Lincolnshire, in a district crowded with villages terminating in the Scandinavian "*by*."

The dialect of the "Northern Farmer" is indisputably that of north-eastern Lincolnshire, for the whole poem abounds with words and phrases peculiar to that part. All the phrases are perfectly correct; but the pronunciation of several of the words is so erroneously given as not to be recognisable even by the autochthon.

Of course it is impossible to indicate, with anything like precision, the *extraordinary* forms of pronunciation by the ordinary vowel notation; dots and marks fail to give exactly the broad, slurring, and, as it were, slovenly style in which the Lincolnshire man speaks.

Before proceeding to analyse the words of the poem it will be necessary to give the whole of the English vowel sounds as nearly as possible as the Northern Farmer would have uttered them.

Mr. Tennyson represents by the dotted *a* (*ä*) a sound which might also, though less elegantly, be represented by *uh*; it is the first sound heard in *earth* and *irksome*.

e, as in *eat*, *heave*, is pronounced *e-uht*, *he-uhv* (or *eät*, *heäv*)
æ (infra)
a, as in *thay*, *nay*, ,, *tha-uh*, *na-uh* (or *thaä*, *naä*)
aw, as in *awe*, *flaw*, ,, *aw-uh*, *flaw-uh* (or *aw-ä*, *flaw-ä*)
o, as in *no*, *loaf*, ,, *no-uh*, *lo-uhf* (or *noä*, *loäf*)
oo, as in *fool*, *soon*, ,, *fŏŏl*, *sŏŏn*, like the *oo* in *wooed*
ah, as in *can't*, ,, *cahn't* (*ah*)

This is rarely used except before *r*, as in *card*, *hard*, *bard*, &c.; *ahnswer*, *grahnt*, *ahsk*, are forms unknown in the north.

It will thus be seen that *e*, *a*, *aw*, and *o* are pronounced, in their incipience, almost (not quite) in the ordinary manner; but they are terminated by the peculiar drawl *uh*, which may be conveniently symbolized by *ä*. *The first sound glides into the second without producing a diphthong.* The *ah*, as above stated, is rarely used before any other letter than *r*, and the *oo* is the ordinary sound much prolonged.

There is also a vowel sound, which usually displaces the terminal long *e*, and which I have symbolized thus—*æ*. It is not exactly an *e*, and not exactly an *a*, but, rather, a sound midway between the two. It is pronounced with the mouth a little more open than is required for the articulation of the *e*.

Of the *short* vowel sounds in *kn(i)t*, *n(e)t*, *n(o)t*, *gn(a)t*, *n(u)t*, the first, second, third, and fourth differ a little from those of ordinary speech by being articulated rather more broadly, and the fifth (*ü*) is pronounced so as to rhyme with *put*. *W* and *y* are sounded as in *we* and *ye*.

In diphthongs (*ī*, *oy*, *ow* (as in *cow*) and *ew* (as in *pew*)) both sounds are broadly enunciated.

Of course there are some exceptions to many of these rules.

Now, as there are, in ordinary speech, contracted forms of vocalization for *my*, *the*, &c., so, in the North-Lincolnshire dialect, there are contracted forms for *he*, *we*, *she*, *they*, *thy*, *thou*, and *thee*, and *I*; which may be thus represented—*'ä*, *wä*, *shä*, *thä*, *thĭ*, *thä* or *tä*, and *Ĭ* or *ä*.

An emphasized word beginning with a vowel, or with an *h*, invariably receives an aspirate, whether it has a right to it or not.

(1.) "I reckons I 'annot sa mooch to larn.
But a cost oop, thot a did, 'boot Bessy Marris's barn"

would be, in the vowel notation given above, and with corrected pronunciation:—

(I reckn's I 'aän't sä müch tä lahrn.
Bŭt ä cast ŭp, that ä did, 'bout Bessy Marris's baärn.)

Baärn (bairn) is the North-Lincoln for "child." By "a cost oop, thot a did," I suppose Mr. Tennyson intends to say either "I cast up, that I did,"—*i.e.*, "I confessed, that I did"—or, "he cast up, that he did"—*i.e.*, that the "Parson" enumerated "that little affair" with Bessy amongst the Northern Farmer's sins. In these two instances the *a* stands for either the pronoun *he* or *I*; in other parts of the poem it represents *'a*, the verb *have*,

a' the preposition *of*, and the Anglo-Saxon prefix *ge*; *a* for *they* is an error.

(2.) "But godamoighty a moost taäke meä and taäke ma now."
(Büt godamĭty 'ä müst taäk mæ and taäk mä now.)

This is the querulous way in which the old man expresses his annoyance at being about to die; herein is an idiom which I have not heard out of Lincolnshire. "*Tha* was not born then."

The *oo*, the final sound of the diphthong *ou* in *thou*, is here lost in the *oo* which commences the following word. It would, however, be more correctly written—

(Tha' was not born then.)
"Gĭt ma my yaäle, I tell *tha*."
(Gĭt mä my aäl, I tell thä.)

(3.) "Huzzin' an' maäzin' the blessed feälds wi' the Divil's oän teäm."

is thus corrected and scanned:—

(Hüzzin' an' | maäzin' thä | blessèd | feälds wĭ' thä | Div'l's | orn | teäm.)

As far as I know, the following words are pronounced, in Lincolnshire, with a very broad ĭ, and not with an *oy*:—*koind*, *point* (pint), *noight*, *loikewoise*, *amoighty*, *toithe*, *toimes*, *loike*, *loirs*, *moind*, *woild*, *squoire*, *quoit* (quite), *floy*, *doy*.

There are some other errors:—*Yaäle* for *aäl*, *rule* for *rewl*, *nawways* for *noäwaäz*, *true* for *trew*, *quart* for *quaärt*, *'annot* for *'aän't*, *boot* for *'bout*, *hallus* for *haw-älus*, *yeäd* for *'eäd*, *goos* for *goäz*, *naw* for *noä*, *aboot* for *about*, *oot* for *out*, *toner* for *toäner*, *fourscore* for *fowerscoor*, *doon* for *down*, *oan* for *orn*, *thirty* for *thotty*, *auf* for *'aäf*, *holms* for *hoäms*, *naw-doot* for *noä doubt*, *abear* for *abeär*, *for* for *fur*, *tottler* for *toätler*, *Thornaby* for *Thurnaby*, *who's* for *oäz*, *hond* for *hand*, *lond* for *land*, *cost* for *cast*, *thot* for *that*, *monaged* for *managed*, *mon* for *man*, *noither* for *neäther*, *un* for *'im*, *gin* for *if*.

A few which require a special notation:—*meä*, *sheä*, *freä*, *heä*, *peä*, should be *mæ*, *shæ*, *fræ*, *hæ*, *pæ*; *done*, *dün*; *looäk*, *lōōk*; *fall*, *faw-al*; *all*, *aw-äl*; *sewer-ly*, *sewer-lĭ*.—I am, &c.,

A Louth Man.

SCIENCE.

THE BRITISH ASSOCIATION AT BATH.

Bath, Thursday Night.

THE Bath meeting of the British Association—although, possibly, things are not even yet in full swing—is already a great success. Select and small in the general anticipation, it is select and numerously attended in fact; and really, when one looks upon the central position which Bath occupies, and the facilities with which it lends itself to such an occasion, one begins to wonder how it could well be otherwise.

We shall encroach too much on the President's speech if we say anything on the geological fitness of Bath; but we must not omit to mention that it was here that William Smith, "the father of English geology," commenced his first collection of organic remains, and the work carried out subsequently by himself and his nephew and co-worker, Professor Phillips, the distinguished President of Section C at the present meeting.

There is also, without doubt, a great rallying of natural-science men, as there should be, round the new President, Sir Charles Lyell—a fact evidenced by the almost unwonted interest taken in Section C, and by the scrupulous care which the local geologists, with Mr. Charles Moore at their head, have taken to collect together the geological riches of the neighbourhood. Not that the Bath men require the Association at their elbow to spur them to the study of Nature; for have we not seen a very handsome stone building—the Royal Literary and Scientific Institution, with its library, its Roman altars and remains, its Godfrey Ornithological Collection, its collection of Land and Fresh-water Shells, and—its latest addition and best of all—its Moore's Geological Museum? And have we not the Bath Natural History Society already fairly launched on its field of usefulness?

The Geological Museum—an almost *impromptu* one, we believe, though it is hard to believe it—is worth much more than a passing notice. It contains a series of organic remains from the Upper Lias, for which it will always be celebrated. The beds themselves are rarely more than from ten to twelve feet in thickness in the West of England; but their high palæontological interest will be manifest by an examination of the fossils here exhibited. Thus we find five Ichthyosauri lying in a yellowish elongated nodular limestone. The bed from which they come is rarely more than six inches thick, and has been denominated by Mr. Moore the "Saurian, fish, and insect bed." Owing to the conservative character of this limestone, these Ichthyosauri retain much of their original soft skins, and within their bodies may still be traced the food on which they lived; in most of them may be found black matter derived from the fluid ink of contemporaneous cuttle-fishes, on which many of these monsters evidently subsisted. The eyes, with their horny sclerotic plates, are very perfect. In one instance they had fallen out of their sockets, and were found alongside their owner in the surrounding clay. The larger specimen was exhibited by Mr. Moore at the Manchester meeting in 1861, in its original condition, when he gave a promise that it should be developed ready for inspection by the time the Association honoured Bath with a visit. He has amply redeemed his promise.

We notice, besides, a most perfect specimen of the *Teleosaurus temporalis*, remains of the genus *Pachychormus*, and of various species of the vertebral column of a new and undescribed genus of fishes; a series of fishes of the genus *Leptolepis*, on which the Teleosauri fed, are also noteworthy.

The organic remains from the Rhætic series are of the greatest value. An inspection of these fossils will at once show that, though the Rhætic beds are comparatively insignificant in thickness in this county, they contain a fauna of the very highest interest. The extraordinary fossils here displayed were separately extracted by Mr. Moore from three tons' weight of a yellow clay, pieces of which in its original condition are exhibited in the same case. It was obtained from a fissure in Carboniferous Limestone at Holwell, to be visited in Saturday's excursion. The most valuable specimens are placed in a case in which are *twenty-nine* teeth of the oldest known Mammalia, some of which belong to *Microlestes*, whilst one or two other genera appear to be represented in the series. Only two teeth of *Microlestes* had previously been found in Germany; and in this county the Mammalia, in beds of so remote an age, are represented by only one other specimen, lately found by Mr. Dawkins at Watchet.

The *Reptilia* are represented by probably eight or nine genera, and consist chiefly of scattered teeth, vertebræ, rib-bones, and claws. Amongst the genera are to be recognised *Nothosaurus*, *Placodus*, *Psephoderma*—all new to England—*Theodontasaurus*, *Plesiosaurus*, *Ichthyosaurus*, *Megalosaurus*, &c. The fish-remains are still more abundant, probably as many as fifteen genera being present. The extraordinary character of this deposit will be recognised when it is stated that, within the quantity before alluded to, not less than 70,000 teeth of the *Lophodus* alone were found.

Following the above are a series of Cephalopoda from the Halstadtt beds of the Alps—a formation occurring between the Rhætic beds just noticed and the Trias, but which has not been recognised in this country. There are also more than usually perfect fish-remains, from the Keuper of Somersetshire, of the genera Diplodus, Hybodus, Acrodus, &c., and others which probably belong to Labyrinthodon. With these are also teeth of *Belodon*, a reptile now first recognised in England.

The whole of one case is occupied with a very complete set of fossil Brachiopoda. As this group has been a special study of Mr. Moore's, there will here be found many new and typical genera and species. From the coral rag there is a new and exceedingly minute Thecideum, *T. pygmæum*, and another, *T. ornatum*, showing its exceedingly delicate loop. From the great oolite of Hampton Down, near Bath, are *Terebratula maxillata*, with loop, and new species of *Terebratella*. The latter shells reveal a curious fact, in which is first recognised a growth or development of the internal calcified loops, showing that they pass from a simple to a more complicated structure. This is shown by attached drawings.

These are some of the objects of interest hastily selected from the many here for the inspection of geologists.

It surely is more than a coincidence that, while our scientific world is gathered in the City of the Waters of the Sun, the Rev. Prebendary Scarth's beautifully illustrated "Aquæ Solis" should make its appearance as well as a third edition of a book proving that the Bath waters are capable of curing nearly all the ills that flesh is heir to, "brain-fag" into the bargain.* Although Dr. Tunstall does not look at mineral springs from M. Lecoq's point of view, and tell us that Bath, like Vichy, is built upon a formation deposited by the springs, Mr. Scarth shows us that there is an ancient city lying, Pompeii-like, under the present one. Ay, and stranger still, a real *bonâ fide* Temple of Minerva under the British Association Reception-room! We take it that, before long, with more cities like Bath to visit, Archæology will be imported bodily into the Association programme as Sub-section C. At all events, what with ancient temples, remains of the twentieth legion, Roman roads, villas, baths, and reminiscences generally, those of our scientific men with an antiquarian turn of mind have their work before them.

But we must pause no longer over the "objects of interest in the city of Bath and its neighbourhood." Are they not written in Mr. Peach's guide-book, presented gratuitously—hear it Nottingham, and in the longer distance, Dundee!—to every member and associate?

A very noteworthy feature in the Bath programme is the unstinted hospitality shown to the distinguished foreign men of science who have already arrived, and prepared for many more who are expected; indeed, we believe that some hundreds of invitations have been forwarded to all countries; and the city, not careless of the responsibility which devolves upon it in consequence of these invitations, has fitted up a house expressly for the reception of its actual and expected distinguished guests, couriers and interpreters not being forgotten. Among the foreign *savans* already here we may mention De Khanikof of St. Petersburg, Nilsson of Stockholm, Vámbery of Hungary, Commodore Maury of the Confederate States, Conrad of the Netherlands, Hebert and De Candolle of Paris, and Welwitsch of Lisbon.

The excursions have been very happily chosen, and we fear that Saturday will almost be a *dies non* in some of the Sections. The excursions to the Vallis on that day, and to Salisbury, Old Sarum, and Stonehenge on Thursday, are, without doubt, those which are most looked forward to. And, really, we know not yet which will come off second best—the geologists or archæologists; for neither Mr. Charles Moore nor the Rev. Prebendary Scarth—and Professor Willis has been espied by the archæologists, *proprement dits*—are likely to have a small following.

The excursionists to the Vallis on Saturday, after leaving Bath, will proceed through the Bradford Valley. At Limpley Stoke the Mammal drift, in which have been found remains of the *Bubalus Moschatus* and *Elephas primigenius*, will be passed through. On reaching Frome the very remarkable physical and palæontological characters of the district from which Mr. Moore has obtained nearly one million specimens of rare Mammalia, Reptiles, and Fishes will be pointed out; and it will be shown that much of what has been supposed carboniferous limestone is as young as the lower lias, and that the ores of lead, iron, calamine, &c., of the district

* "Aquæ Solis; or, Notices of Roman Bath." By the Rev. H. M. Scarth. (Bath: Peach; London: Simpkin, Marshall, & Co.)
"The Bath Waters: their Uses and Effects in the Cure and Relief of various Chronic Diseases." By James Tunstall, M.D. (Churchill.)

are of much later date than the carboniferous limestone. The Earl of Cork and Orrery, Lord-Lieutenant of Somersetshire, has invited the party to luncheon.

The other excursions are (on Saturday) to the druidical remains at Stanton Drew and the collieries at Radstock—Ludlow's pit, in the North Somerset Coal-field, being lighted up for the occasion—and (on Thursday) to Bristol. Here the party will meet at the Hotwell's House, and, under the guidance of Mr. Sanders and Mr. W. W. Stoddart, will proceed down the banks of the river Avon, to inspect the section of the limestone and old red sandstone rocks. A deputation from the Society of Architects will explain the chief points of interest in the church of St. Mary Redcliff, the Cathedral, and the Mayor's Chapel. The Mayor of Bristol, in the name of the citizens, has invited the visitors to luncheon at the Victoria Rooms, Clifton, and the directors of the Suspension Bridge have invited the members and associates of the Association to meet Mr. Hawkshaw at the bridge at 2.30 p.m.

Yesterday was occupied with a meeting of the General Committee at one o'clock to receive the Reports of Council Meetings, of the Committees of Sections at two, and the Inaugural Address at eight.

At the first meeting the ordinary routine business was enlivened towards its close by the discussion of a proposal that Section E should for the future embrace Ethnology, Geography, and Anthropology. Although many in the room were willing to concede that Anthropology, as such, should have an abiding-place somewhere in the Association programme, the bad taste with which the proposal was made rendered such a concession all but impossible. It was stated, for instance, that, if the terms of the Anthropological Society were not accepted, the papers sent by that Society should not be read—a *façon de parler* on which comment on our part is unnecessary.

The Report of the Council acknowledged the receipt of the Report of the Kew Committee for the past year, which will be laid before the General Committee on Monday.

The Report of the Parliamentary Committee was unanimously adopted. It remarked that, although no subject was referred to the Parliamentary Committee at Newcastle, several of its members have supported, or signified their intention to support, the valuable suggestion of the Royal Commissioners—that the study of natural science should be introduced into certain public schools, and likewise the bill for legalizing the use of the metric system of weights and measures.

The Council have added to the list of corresponding members the names of the following foreign men of science, who have been present at meetings of the Association: Dr. Torell, Dr. Buys Ballot, M. Des Cloizeaux, and Prof. Adolph Steen.

It was announced that invitations to hold the next meeting of the Association at Birmingham, and another to hold it at Nottingham, had been received. An invitation has also been received from Dundee for the year 1867. We believe the good people of Dundee are building in order that the Association may be better received when it does go; hence the required delay.

Mr. W. Spottiswoode, the treasurer, submitted the financial statement for the year, from which it appeared that, including a balance in hand from the previous account of £372. 4s., the receipts amounted to £4505. 0s. 11d., and that, after paying all expenses, there remained a balance in hand of £364. 17s. 5d.

The President's inaugural address was delivered in the theatre—a very prettily decorated building, which served its purpose admirably. The only condition, however, under which it could accommodate the members was that the General Committee should make "their ficst appearance on any boards" and occupy the stage—which they did—at all events those parts of it where ladies were not. It would be impossible for us to chronicle in the space at our disposal the names of all the celebrated men here collected together; so, lest we be invidious, we will mention none.

Sir Wm. Armstrong, in a speech full of point, and seasoned with that very soul of wit—brevity—vacated the presidential chair to Sir Charles Lyell, who was as warmly welcomed as his speech was carefully listened to.

The speeches after the inaugural address were not so short as Sir Wm. Armstrong's, but they were very good. The Mayor of Bath (J. Murch, Esq.), clad in his robes of office, spoke words of welcome, and commented, as well he might, with the American minister and Commodore Maury, and other distinguished strangers on the platform, upon that brotherhood which defies all diversities and triumphs over all difficulties—the brotherhood of Science.

Sir Roderick Murchison alluded to the "culminating honour" recently bestowed upon Sir Charles Lyell, and to the work done by them together, and finally moved a formal vote of thanks for the admirable address, which was seconded by the Earl of Cork.

This morning the sectional business commenced; and, although we cannot begin this week to report the papers, we may remark that, among those already in the hands of the secretaries of Sections, some of them are of the greatest interest. In Section A, besides the usual reports on luminous meteors and the balloon-ascents, Professor Phillips and, we believe, the Rev. W. R. Dawes, have contributed memoirs on the *questio vexata* of the telescopic appearance of the sun. Its opening meeting this morning, under the presidency of Professor Cayley, was a very interesting one—Physical Astronomy being the order of the day, as Pure Mathematics will be to-morrow,

In Section B to-morrow will be discussed the Report of the Committee on the best means of providing for a uniformity of weights and measures with reference to the interests of science. This and Dr. Daubeny's paper on the mineral waters of Bath, read to day, have been looked forward to with much interest. In Section C Professor Phillips has delivered a most admirable opening address, and made an announcement of a find in the lacustrine deposits of Switzerland. In the Meeting-room is a geological map of the Bristol Coal-field, from the surveys of Mr. Saunders, which is worthily an object of general admiration.

The following are some of the papers which will occupy Section D next week:—"On the Ornithology of Palestine," by the Rev. H. B. Tristram; "On the Decay of Species, and the Natural Provision for Extending their Duration," by Dr. Daubeny; "On the Natural History of the Oyster," by F. Buckland; "On the Pedicellariæ of the Echinodermata," by Dr. Herapath; "On the Whalebone Whale of the British Coast," and "On New Corals from the Shetlands," by Dr. J. E. Gray; "On Certain Points in the Anatomy of the Earthworm," by E. Ray Lankester; "Niger Expedition, Letters from," by Dr. Baikie; "On Human Remains found in the Round and Long Tumuli of the Cotteswold Hills, near Cheltenham," by Dr. Bird. The President's Address, an interesting one, was followed to-day by a paper by Dr. Cobbold "On the Development and Migration of the Entozoa," and Mr. Gwyn Jeffrey's Dredging Report.

Sub-section D has already received the following papers for next week, the opening meeting this morning being occupied by the question of Dietaries:—"Observations on the Measurements of the Head and Weight of Brain in 696 cases of Insanity," by R. Boyd, M.D.; "What is the best Method of estimating the Nutritive Value of Foods and Dietaries?" by Edward Smith, M.D., F.R.S.; "On the Occurrence of Indigo in Purulent Discharges," by W. B. Herapath, M.D.; "Report on the Present State of our Knowledge of Muscular Irritability," by M. Foster, jun., M.D.; "On Variations in the Arrangements of the Flexor Muscles of the Human Fingers and Toes," "On a Supplementary System of Nutriment Arteries for the Lungs," by Wm. Turner, M.B., F.R.S.E.; "Note on the Actions of the Bromides of Lithium and Zinc," by G. D. Gibb, M.D.; "On the Origin and Arrangement of the Superficial Branches of the Lymphatics in the Liver of Man and the Pig," by T. A. Carter, M.D.; "On the Obliteration of the Sutures in One Class of Ancient Skulls," by John Thurnam, M.D., and "On Trigonocephalus," by W. Turner, M.B.; "On Meat, Drink, Vegetables, and Fruit, as a Source of Entozoa," by T. S. Cobbold, M.D., F.R.S.; "On the Temperature of the Sexes, and Observations on the Generative Function of the Salmonidæ," by John Davy, M.D., F.R.S.; "On the Various Forms assumed by the Glottis," by G. D. Gibb, M.D.

In Section E the following are among the papers of interest to be read on a future day:—"On the Progress of Civilization in Celebes," by A. R. Wallace; "On a Journey over the Rocky Mountains," by Lord Milton. We need scarcely add that this morning this Section was soon filled to overflowing by those anxious to see the bevy of celebrated travellers grouped round the President, Captains Burton and Speke and M. de Khanikof among them. The papers read to-day were by the Rev. H. B. Tristram, M. Vámbery, M. Nicolas de Khanikof, and M. Alexander Hippino.

Among the papers contributed to Section F we may mention:—The Recorder of Bath, "On Crime;" Dr. J. A. Symons, "On the Health of Clifton;" J. B. Middleton, "Sanitary Statistics of Salisbury;" Mr. Westgarth, "Crime in Australia;" Colonel Torrens, "On a Cheap Conveyance to Lands in Ireland."

In Section G the Report on Gun-Cotton is expected to give rise to an as interesting discussion as the chemical part of it did to-day in Section B, enlivened as it was by experiments and the practical remarks of Commodore Maury.

The Pharmaceutical Conference held its annual meeting yesterday (Wednesday), under the presidency of Mr. Deane. The Ray Society meets to-morrow. We must postpone our *compte-rendu* of their proceedings till next week.

The *Conversazione* to-night in the Assembly Rooms promises to be a very brilliant affair. It will be followed by Professor Roscoe's discourse on Friday, Dr. Livingstone's on Monday, a microscopical *soirée* on Tuesday, and the concluding meeting on Wednesday.

After the inaugural address last night, Mr. Griffiths stated that the number of tickets that had been issued up to seven o'clock was 2309, representing in money £2428 to be added to the funds of the Association. Those tickets were divided in the following manner:—The largest number by far—namely, 930—had been issued to ladies; to associates, 917; to life members, over 230; and to annual subscribers, more than 200. This number has gone on steadily increasing all to-day, and it is quite possible that it may reach 3000. We must not forget to mention that the Local Fund has already reached the sum of £2500, most of it contributed in the city of Bath itself.

We conclude our account this week with Sir Charles Lyell's address, one certainly of the most admirable speeches that have ever been prepared for such an occasion, and a perfect model for all his successors. J. N. L.

SIR CHARLES LYELL'S INAUGURAL ADDRESS.

"Gentlemen of the British Association,—The place where we have been invited this year to hold our thirty-fourth meeting is one of no ordinary interest to the cultivators of physical science. It might have been selected by my fellow-labourers in geology as a central point of observation, from which, by short excursions to the east and west, they might examine those rocks which constitute, on the one side, the more modern, and on the other the more ancient records of the past, while around them and at their feet lie monuments of the middle period of the earth's

history. But there are other sites in England which might successfully compete with Bath as good surveying stations for the geologist. What renders Bath a peculiar point of attraction to the student of natural phenomena is its thermal and mineral waters, to the sanatory powers of which the city has owed its origin and celebrity. The great volume and high temperature of these waters render them not only unique in our island, but, perhaps, without a parallel in the rest of Europe, when we duly take into account their distance from the nearest region of violent earthquakes or of active or extinct volcanoes. The spot where they issue, as we learn from the researches of the historian and antiquary, was lonely and desert when the Romans first landed in this island, but, in a few years, it was converted into one of the chief cities of the newly-conquered province. On the site of the hot springs was a large morass from which clouds of white vapour rose into the air; and there first was the spacious bath-room built, in a highly ornamental style of architecture, and decorated with columns, pilasters, and tessellated pavements. By its side was erected a splendid temple dedicated to Minerva, of which some statues and altars, with their inscriptions, and ornate pillars are still to be seen in the Museum of this place. To these edifices the quarters of the garrison and, in the course of time, the dwellings of new settlers were added; and they were all encircled by a massive wall, the solid foundations of which still remain.

"A dense mass of soil and rubbish, from ten to twenty feet thick, now separates the level on which the present city stands from the level of the ancient Aquæ Solis of the Romans. Digging through this mass of heterogeneous materials, coins and coffins of the Saxon period have been found; and lower down, beginning at the depth of from twelve to fifteen feet from the surface, coins have been disinterred of Imperial Rome, bearing dates from the reign of Claudius to that of Maximus in the fifth century. Beneath the whole are occasionally seen tessellated pavements still retaining their bright colours, one of which, on the site of the Mineral-water Hospital, is still carefully preserved, affording us an opportunity of gauging the difference of level of ancient and modern Bath.

"On the slopes and summits of the picturesque hills in the neighbourhood rose many a Roman villa, to trace the boundaries of which, and to bring to light the treasures of art concealed in them, are tasks which have of late years amply rewarded the researches of Mr. Scarth and other learned antiquaries. No wonder that on this favoured spot we should meet with so many memorials of former greatness, when we reflect on the length of time during which the imperial troops and rich colonists of a highly civilized people sojourned here, having held undisturbed possession of the country for as many years as have elapsed from the first discovery of America to our own times.

"One of our former presidents, Dr. Daubeny, has remarked that nearly all the most celebrated hot springs of Europe, such as those of Aix-la-Chapelle, Baden-Baden, Naples, Auvergne, and the Pyrenees, have not declined in temperature since the days of the Romans; for many of them still retain as great a heat as is tolerable to the human body, and yet, when employed by the ancients, they do not seem to have required to be first cooled down by artificial means. This uniformity of temperature, maintained in some places for more than 2000 years, together with the constancy in the volume of the water, which never varies with the seasons, as in ordinary springs, the identity also of the mineral ingredients which, century after century, are held by each spring in solution, are striking facts, and they tempt us irresistibly to speculate on the deep subterranean sources both of the heat and mineral matter. How long has this uniformity prevailed? Are the springs really ancient in reference to the earth's history, or, like the course of the present rivers and the actual shape of our hills and valleys, are they only of high antiquity when contrasted with the brief space of human annals? May they not be like Vesuvius and Etna, which, although they have been adding to their flanks, in the course of the last 2000 years, many a stream of lava and shower of ashes, were still mountains very much the same as they now are in height and dimensions from the earliest times to which we can trace back their existence? Yet, although their foundations are tens of thousands of years old, they were laid at an era when the Mediterranean was already inhabited by the same species of marine shells as those with which it is now peopled; so that these volcanoes must be regarded as things of yesterday in the geological calendar.

"Notwithstanding the general persistency in character of mineral waters and hot springs ever since they were first known to us, we find, on inquiry, that some few of them, even in historical times, have been subject to great changes. These have happened during earthquakes which have been violent enough to disturb the subterranean drainage and alter the shape of the fissures up which the waters ascend. Thus, during the great earthquake at Lisbon in 1755, the temperature of the spring called La Source de la Reine, at Bagnères de Luchon, in the Pyrenees, was suddenly raised as much as 75° F., or changed from a cold spring to one of 122° F., a heat which it has since retained. It is also recorded that the hot springs at Bagnères de Bigorre, in the same mountain-chain, became suddenly cold during a great earthquake which, in 1660, threw down several houses in that town.

"It has been ascertained that the hot springs of the Pyrenees, the Alps, and many other regions are situated in lines along which the rocks have been rent, and usually where they have been displaced or 'faulted.' Similar dislocations in the solid crust of the earth are generally supposed to have determined the spots where active and extinct volcanoes have burst forth; for several of these often affect a linear arrangement, their position seeming to have been determined by great lines of fissure. Another connecting link between the volcano and the hot spring is recognisable in the great abundance of hot springs in regions where volcanic eruptions still occur from time to time. It is also in the same districts that the waters occasionally attain the boiling temperature, while some of the associated stufas emit steam considerably above the boiling-point. But, in proportion as we recede from the great centres of igneous activity, we find the thermal waters decreasing in frequency and in their average heat, while, at the same time, they are most conspicuous in those territories where, as in Central France or the Eifel in Germany, there are cones and craters still so perfect in their form, and streams of lava bearing such a relation to the depth and shape of the existing valleys, as to indicate that the internal fires have become dormant in comparatively recent times. If there be exceptions to this rule, it is where hot springs are met with in parts of the Alps and Pyrenees which have been violently convulsed by modern earthquakes.

"To pursue still further our comparison between the hot spring and the volcano, we may regard the water of the spring as representing those vast clouds of aqueous vapour which are copiously evolved for days, sometimes for weeks, in succession from craters during an eruption. But we shall, perhaps, be asked whether, when we contrast the work done by the two agents in question, there is not a marked failure of analogy in one respect—namely, a want, in the case of the hot spring, of power to raise from great depths in the earth voluminous masses of solid matter corresponding to the heaps of scoriæ and streams of lava which the volcano pours out on the surface. To one who urges such an objection it may be said that the quantity of solid as well as gaseous matter transferred by springs from the interior of the earth to its surface is far more considerable than is commonly imagined. The thermal waters of Bath are far from being conspicuous among European hot springs for the quantity of mineral matter contained in them in proportion to the water which acts as a solvent; yet Professor Ramsay has calculated that, if the sulphates of lime and of soda, and the chlorides of sodium and magnesium, and the other mineral ingredients which they contain, were solidified, they would form in one year a square column nine feet in diameter, and no less than 140 feet in height. All this matter is now quietly conveyed by a stream of limpid water, in an invisible form, to the Avon, and by the Avon to the sea; but, if, instead of being thus removed, it were deposited around the orifice of eruption, like the siliceous layers which encrust the circular basis of an Icelandic geyser, we should soon see a considerable cone built up, with a crater in the middle; and, if the action of the spring were intermittent, so that ten or twenty years should elapse between the periods when solid matter was emitted, or (say) an interval of three centuries, as in the case of Vesuvius between 1306 and 1631, the discharge would be on so grand a scale as to afford no mean object of comparison with the intermittent outpourings of a volcano.

"Dr. Daubeny, after devoting a month to the analysis of the Bath waters in 1833, ascertained that the daily evolution of nitrogen gas amounted to no less than 250 cubic feet in volume. This gas, he remarks, is not only characteristic of hot springs, but is largely disengaged from volcanic craters during eruptions. In both cases he suggests that the nitrogen may be derived from atmospheric air, which is always dissolved in rain-water, and which, when this water penetrates the earth's crust, must be carried down to great depths, so as to reach the heated interior. When there, it may be subjected to deoxidating processes, so that the nitrogen, being left in a free state, may be driven upwards by the expansive force of heat and steam, or by hydrostatic pressure. This theory has been very generally adopted, as best accounting for the constant disengagement of large bodies of nitrogen, even where the rocks through which the spring rises are crystalline and unfossiliferous. It will, however, of course be admitted, as Professor Bischoff has pointed out, that in some places organic matter has supplied a large part of the nitrogen evolved.

"Carbonic-acid gas is another of the volatilized substances discharged by the Bath waters. Dr. Gustav Bischoff, in the new edition of his valuable work on chemical and physical geology, when speaking of the exhalations of this gas, remarks that they are of universal occurrence, and that they originate at great depths, becoming more abundant the deeper we penetrate. He also observes that, when the silicates which enter so largely into the composition of the oldest rocks are percolated by this gas, they must be continually decomposed, and the carbonates formed by the new combinations thence arising must often augment the volume of the altered rocks. This increase of bulk, he says, must sometimes give rise to a mechanical force of expansion capable of uplifting the incumbent crust of the earth; and the same force may act laterally so as to compress, dislocate, and tilt the strata on each side of a mass in which the new chemical changes are developed. The calculations made by this eminent German chemist of the exact amount of distension which the origin of new mineral products may cause, by adding to the volume of the rocks, deserve the attention of geologists, as affording them aid in explaining those reiterated oscillations of level—those risings and sinkings of land—which have occurred on so grand a scale at successive periods of the past. There are probably many distinct causes of such upward, downward, and lateral movements, and any new suggestion on this head is most welcome; but I believe the expansion and contraction of solid rocks, when they are alternately heated and cooled, and the fusion and subsequent consolidation of mineral masses, will continue to rank, as heretofore, as the most influential causes of such movements.

"The temperature of the Bath waters varies in the different springs from 117° to 120° F. This, as before stated, is exceptionally high, when we duly allow for the great distance of Bath from the nearest region of active or recently-extinct volcanoes and of violent earthquakes. The hot springs of Aix-la-Chapelle have a much higher temperature, —viz., 135° F., but they are situated within forty miles of those cones and lava-streams of the Eifel which, though they may have spent their force ages before the earliest records of history, belong, nevertheless, to the most modern geological period. Bath is about 400 miles distant from the same part of Germany, and 440 from Auvergne—another volcanic region, the latest eruptions of which were geologically coeval with those of the Eifel. When these two regions in France and Germany were the theatres of frequent convulsions, we may well suppose that England was often more rudely shaken than now; and such shocks as that of October last, the sound and rocking motion of which caused so great a sensation as it traversed the southern part of the island, and seems to have been particularly violent in Hertfordshire, may be only a languid reminder to us of a force of which the energy has been gradually dying out.

"If you consult the geological map of the environs of this city, coloured by the Government surveyors, you will perceive that numerous lines of fault or displacement of the rocks are there laid down, and one of these has shifted the strata vertically as much as 200 feet. Mr. Charles Moore pointed out to me last spring, when I had the advantage of examining the geology of this district under his guidance, that there are other lines of displacement not yet laid down on the Ordnance Map, the existence of which must be inferred from the different levels at which the same formations crop out on the flanks of the hills to the north and south of the city. I have, therefore, little doubt that the Bath springs, like most other thermal waters, mark the site of some ·at convulsion

and fracture which took place in the crust of the earth at some former period—perhaps not a very remote one, geologically speaking. The uppermost part of the rent through which the hot water rises is situated in horizontal strata of Lias and Trias, 300 feet thick; and this may be more modern than the lower part, which passes through the inclined and broken strata of the subjacent coal-measures, which are unconformable to the Trias. The nature and succession of these rocks penetrated by the Bath waters were first made out by the late William Smith in 1817, when a shaft was sunk in the vicinity in search for coal. The shock which opened a communication through the upper rocks may have been of a much later date than that which fractured the older and underlying strata; for there is a tendency in the earth's crust to yield most readily along lines of ancient fracture, which constitute the points of least resistance to a force acting from below.

"If we adopt the theory already alluded to—that the nitrogen is derived from the deoxidation of atmospheric air carried down by rain-water—we may imagine the supply of this water to be furnished by some mountainous region, perhaps a distant one, and that it descends through rents or porous rocks till it encounters some mass of heated matter by which it is converted into steam and then driven upwards through a fissure. In its downward passage the water may derive its sulphate of lime, chloride of calcium, and other substances from the decomposition of the gypseous, saline, calcareous, and other constituents of the rocks which it permeates. The greater part of the ingredients are common to sea-water, and might suggest the theory of a marine origin; but the analysis of the Bath springs by Merck and Galloway shows that the relative proportion of the solid matter is far from agreeing with that of the sea, the chloride of magnesium being absolutely in excess—that is, 14 grains of it per gallon for 12 of common salt; whereas, in sea-water, there are 27 grains of common salt, or chloride of sodium, to 4 of the chloride of magnesium. That some mineral springs, however, may derive an inexhaustible supply, through rents and porous rocks, from the leaky bed of the ocean is by no means an unreasonable theory, especially if we believe that the contiguity of nearly all the active volcanoes to the sea is connected with the access of salt water to the subterranean foci of volcanic heat.

"Professor Roscoe of Manchester has been lately engaged in making a careful analysis of the Bath waters, and has discovered in them three metals which they were not previously known to contain—namely, copper, strontium, and lithium; but he has searched in vain for cæsium and rubidium, those new metals the existence of which has been revealed to us in the course of the last few years by what is called spectrum-analysis. By this new method the presence of infinitesimal quantities, such as would have wholly escaped detection by ordinary tests, are made known to the eye by the agency of light. Thus, for example, a solid substance such as the residue obtained by evaporation from a mineral water is introduced on a platinum wire into a colourless gas-flame. The substance thus volatilized imparts its colour to the flame, and the light, being then made to pass through a prism, is viewed through a small telescope or spectroscope, as it is called, by the aid of which one or more bright lines or bands are seen in the spectrum, which, according to their position, number, and colour, indicate the presence of different elementary bodies.

"Professor Bunsen of Heidelberg led the way, in 1860, in the application of this new test to the hot waters of Baden-Baden and of Dürkheim in the Palatinate. He observed in the spectrum some coloured lines of which he could not interpret the meaning, and was determined not to rest till he had found out what they meant. This was no easy task, for it was necessary to evaporate fifty tons of water to obtain 200 grains of what proved to be two new metals. Taken together, their proportion to the water was only as one to three million. He named the first cæsium, from the bluish-grey lines which it presented in the spectrum; and the second rubidium, from its two red lines. Since these successful experiments were made, thallium, so called from its green line, was discovered in 1861 by Mr. Crookes; and a fourth metal named indium, from its indigo-coloured band, was detected by Professor Richter of Freiberg in Saxony in a zinc ore of the Hartz. It is impossible not to suspect that the wonderful efficacy of some mineral springs, both cold and thermal, in curing diseases, which no artificially prepared waters have as yet been able to rival, may be connected with the presence of one or more of these elementary bodies previously unknown; and some of the newly-found ingredients, when procured in larger quantities, may furnish medical science with means of combating diseases which have hitherto baffled all human skill.

"While I was pursuing my inquiries respecting the Bath waters I learned casually that a hot spring had been discovered at a great depth in a copper-mine near Redruth in Cornwall, having about as high a temperature as that of the Bath waters, and of which, strange to say, no account has yet been published. It seems that, in the year 1839, a level was driven from an old shaft so as to intersect a rich copper-mine at the depth of 1350 feet from the surface. This lode or metalliferous fissure occurred in what were formerly called the United Mines, and which have since been named the Clifford Amalgamated Mines. Through the contents of the lode a powerful spring of hot water was observed to rise, which has continued to flow with undiminished strength ever since. At my request, Mr. Horton Davey of Redruth had the kindness to send up to London many gallons of this water, which have been analysed by Professor William Allen Miller, F.R.S., who finds that the quantity of solid matter is so great as to exceed by more than four times the proportion of that yielded by the Bath waters. Its composition is also in many respects very different; for it contains but little sulphate of lime, and is almost free from the salts of magnesium. It is rich in the chlorides of calcium and sodium, and it contains one of the new metals—cæsium, never before detected in any mineral spring in England; but its peculiar characteristic is the extraordinary abundance of lithium, of which a mere trace had been found by Professor Roscoe in the Bath waters; whereas, in this Cornish hot spring this metal constitutes no less than a twenty-sixth part of the whole of the solid contents, which, as before stated, are so voluminous. When Professor Miller exposed some of these contents to the test of spectrum-analysis, he gave me an opportunity of seeing the beautiful bright crimson line which the lithium produces in the spectrum.

"Lithium was first made known in 1817 by Arfvedsen, who extracted it from petalite; and it was believed to be extremely rare, until Bunsen and Kirchhoff, in 1860, by means of spectrum-analysis, showed that it was a most widely diffused substance, existing in minute quantities in almost all mineral waters and in the sea, as well as in milk, human blood, and the ashes of some plants. It has already been used in medicine, and we may therefore hope that, now that it is obtainable in large quantities, and at a much cheaper rate than before the Wheal-Clifford hot spring was analysed, it may become of high value. According to a rough estimate which has been sent to me by Mr. Davey, the Wheal-Clifford spring yields no less than 250 gallons per minute, which is almost equal to the discharge of the King's Bath or chief spring of this city. As to the gases emitted, they are the same as those of the Bath water—namely, carbonic acid, oxygen, and nitrogen.

"Mr. Warington Smyth, who had already visited the Wheal-Clifford lode in 1855, re-examined it in July last, chiefly with the view of replying to several queries which I had put to him; and, in spite of the stifling heat, ascertained the geological structure of the lode and the exact temperature of the water. This last he found to be 122° F. at the depth of 1350 feet; but he scarcely doubts that the thermometer would stand two or three degrees higher at a distance of 200 feet to the eastward, where the water is known to gush up more freely. The Wheal-Clifford lode is a fissure varying in width from 6 to 12 feet, one wall consisting of elvan or porphyritic granite, and the other of killas or clay-slate. Along the line of the rent, which runs east and west, there has been a slight throw or shift of the rocks. The vein-stuff is chiefly formed of cellular pyrites of copper and iron, the porous nature of which allows the hot water to percolate freely through it. It seems, however, that, in the continuation upwards of the same fissure, little or no metalliferous ore was deposited, but, in its place, quartz and other impermeable substances, which obstructed the course of the hot spring, so as to prevent its flowing out on the surface of the country. It has been always a favourite theory of the miners that the high temperature of this Cornish spring is due to the oxidation of the sulphurets of copper and iron, which are decomposed when air is admitted. That such oxidation must have some slight effect is undeniable; but that it materially influences the temperature of so large a body of water is out of the question. Its effect must be almost insensible; for Professor Miller has scarcely been able to detect any sulphuric acid in the water, and a minute trace only of iron and copper in solution.

"When we compare the temperature of the Bath springs, which issue at a level of less than 100 feet above the sea, with the Wheal-Clifford spring found at a depth of 1350 feet from the surface, we must of course make allowance for the increase of heat always experienced when we descend into the interior of the earth. The difference would amount to about 20° F., if we adopt the estimate deduced by Mr. Hopkins from an accurate series of observations made in the Monkwearmouth shaft, near Durham, and in the Dukinfield shaft, near Manchester, each of them 2000 feet in depth. In these shafts the temperature was found to rise at the rate of only 1° F. for every increase of depth from sixty-five to seventy feet. But, if the Wheal-Clifford spring, instead of being arrested in its upward course, had continued to rise freely through porous and loose materials so as to reach the surface, it would probably not have lost anything approaching to 20° F., since the renewed heat derived from below would have warmed the walls and contents of the lode, so as to raise their temperature above that which would naturally belong to the rocks at corresponding levels on each side of the lode. The almost entire absence of magnesium raises an obvious objection to the hypothesis of this spring deriving its waters from the sea; or, if such a source be suggested for the salt and other marine products, we should be under the necessity of supposing the magnesium to be left behind in combination with some of the elements of the decomposed and altered rocks through which the thermal waters may have passed.

"Hot springs are, for the most part, charged with alkaline and other highly soluble substances, and, as a rule, are barren of the precious metals, gold, silver, and copper, as well as of tin, platinum, lead, and many others, a slight trace of copper in the Bath waters being exceptional. Nevertheless, there is a strong presumption that there exists some relationship between the action of thermal waters and the filling of rents with metallic ores. The component elements of these ores may, in the first instance, rise from great depths in a state of sublimation or of solution in intensely heated water, and may then be precipitated on the walls of a fissure as soon as the ascending vapours or fluids begin to part with some of their heat. Almost everything, save the alkaline metals, silica, and certain gases, may thus be left behind long before the spring reaches the earth's surface. If this theory be adopted, it will follow that the metalliferous portion of a fissure, originally thousands of feet or fathoms deep, will never be exposed in regions accessible to the miner until it has been upheaved by a long series of convulsions, and until the higher parts of the same rent, together with its contents and the rocks which it had traversed, have been removed by aqueous denudation. Ages before such changes are accomplished thermal and mineral springs will have ceased to act; so that the want of identity between the mineral ingredients of hot springs and the contents of metalliferous veins, instead of militating against their intimate relationship, is in favour of both being the complementary results of one and the same natural operation.

"But there are other characters in the structure of the earth's crust more mysterious in their nature than the phenomena of metalliferous veins, on which the study of hot springs has thrown light—I allude to the metamorphism of sedimentary rocks. Strata of various ages, many of them once full of organic remains, have been rendered partially or wholly crystalline. It is admitted on all hands that heat has been instrumental in bringing about this re-arrangement of particles, which, when the metamorphism has been carried out to its fullest extent, obliterates all trace of the imbedded fossils. But, as mountain-masses many miles in length and breadth, and several thousands of feet in height, have undergone such alteration, it has always been difficult to explain in what manner an amount of heat capable of so entirely changing the molecular condition of sedimentary masses could have come into play without utterly annihilating every sign of stratification, as well as of organic structure.

"Various experiments have led to the conclusion that the minerals which enter most largely into the composition of the metamorphic rocks have not been formed by crystallizing from a state of fusion, or in the dry way, but that they have been derived from liquid solutions, or in the wet way—a process requiring a far less intense degree of heat. Thermal springs, charged with carbonic acid and with hydro-fluoric acid (which last is often present in small quantities), are powerful

causes of decomposition and chemical reaction in rocks through which they percolate. If, therefore, large bodies of hot water permeate mountain-masses at great depths, they may, in the course of ages, superinduce in them a crystalline structure; and in some cases strata in a lower position, and of older date, may be comparatively unaltered, retaining their fossil remains undefaced, while newer rocks are rendered metamorphic. This may happen where the waters, after passing upwards for thousands of feet, meet with some obstruction, as in the case of the Wheal-Clifford spring, causing the same to be laterally diverted so as to percolate the surrounding rocks. The efficacy of such hydro-thermal action has been admirably illustrated of late years by the experiments and observations of Sénarmont, Daubrée, Delesse, Scheerer, Sorby, Sterry, Hunt, and others.

"The changes which Daubrée has shown to have been produced by the alkaline waters of Plombières, in the Vosges, are more especially instructive. These thermal waters have a temperature of 160° F., and were conveyed by the Romans to baths through long conduits or aqueducts. The foundations of some of their works consisted of a bed of concrete made of lime, fragments of brick, and sandstone. Through this and other masonry the hot waters have been percolating for centuries, and have given rise to various zeolites—apophyllite and chabazite among others; also to calcareous spar, arragonite, and fluor spar, together with siliceous minerals, such as opal,—all found in the interspaces of the bricks and mortar, or constituting part of their re-arranged materials. The quantity of heat brought into action in this instance in the course of 2000 years has, no doubt, been enormous, although the intensity of it developed at any one moment has been always inconsiderable.

"The study, of late years, of the constituent parts of granite has in like manner led to the conclusion that their consolidation has taken place at temperatures far below those formerly supposed to be indispensable. Gustav Rose has pointed out that the quartz of granite has the specific gravity of 2·6, which characterizes silica when it is precipitated from a liquid solvent, and not that inferior density—namely, 2·3—which belongs to it when it cools and solidifies in the dry way from a state of fusion.

"But some geologists, when made aware of the intervention on a large scale of water in the formation of the component minerals of the granitic and volcanic rocks, appear of late years to be too much disposed to dispense with intense heat when accounting for the formation of the crystalline and unstratified rocks. As water in a state of solid combination enters largely into the aluminous and some other minerals, and therefore plays no small part in the composition of the earth's crust, it follows that, when rocks are melted, water must be present, independently of the supplies of rain-water and sea-water which find their way into the regions of subterranean heat. But the existence of water under great pressure affords no argument against our attributing an excessively high temperature to the mass with which it is mixed up. Still less does the point to which the melted matter must be cooled down before it consolidates or crystallizes into lava or granite afford any test of the degree of heat which the same matter must have acquired when it was melted and made to form lakes and seas in the interior of the earth's crust.

"We learn from Bunsen's experiments on the Great Geyser in Iceland that, at the depth of only seventy-four feet, at the bottom of the tube, a column of water may be in a state of rest, and yet possess a heat of 120° Centigrade, or 248° F. What, then, may not the temperature of such water be at the depth of a few thousand feet? It might soon attain a white heat under pressure; and, as to lava, they who have beheld it issue, as I did in 1858, from the south-western flanks of Vesuvius, with a surface white and glowing like that of the sun, and who have felt the scorching heat which it radiates, will form a high conception of the intense temperature of the same lava at the bottom of a vertical column several miles high, and communicating with a great reservoir of fused matter, which, if it were to begin at once to cool down, and were never to receive future accessions of heat, might require a whole geological period before it solidified. Of such slow refrigeration hot springs may be among the most effective instruments, abstracting slowly from the subterranean molten mass that heat which clouds of vapour are seen to carry off in a latent form from a volcanic crater during an eruption, or from a lava-stream during its solidification. It is more than forty years since Mr. Scrope, in his work on volcanoes, insisted on the important part which water plays in an eruption, when intimately mixed up with the component materials of lava, aiding, as he supposed, in giving mobility to the more solid materials of the fluid mass. But, when advocating this igneo-aqueous theory, he never dreamt of impugning the Huttonian doctrine as to the intensity of heat which the production of the unstratified rocks, those of the plutonic class especially, implies.

"The exact nature of the chemical changes which hydrothermal action may effect in the earth's interior will long remain obscure to us, because the regions where they take place are inaccessible to man; but the manner in which volcanoes have shifted their position throughout a vast series of geological epochs—becoming extinct in one region and breaking out in another—may, perhaps, explain the increase of heat as we descend towards the interior, without the necessity of our appealing to an original central heat or the igneous fluidity of the earth's nucleus.

"I hinted, at the beginning of this Address, that the hot springs of Bath may be of no high antiquity, geologically speaking—not that I can establish this opinion by any positive proofs, but I infer it from the mighty changes which this region has undergone since the time when the British seas, rivers, and lakes were inhabited by the existing species of Testacea. It is already more than a quarter of a century since Sir Roderick Murchison first spoke of the Malvern Straits, meaning thereby a channel of the sea which once separated Wales from England. That such marine straits really extended, at a modern period, between what are now the estuaries of the Severn and the Dee has been lately confirmed in a satisfactory manner by the discovery of marine shells of recent species in drift covering the water-shed which divides those estuaries. At the time when these shells were living, the Cotswold Hills, at the foot of which this city is built, formed one of the numerous islands of an archipelago into which England, Ireland, and Scotland were then divided. The amount of vertical movement which would be necessary to restore such a state of the surface as prevailed when the position of land and sea were so different would be very great.

"Nowhere in the world, according to our pesent information, is the evidence of upheaval, as manifested by upraised marine shells, so striking as in Wales. In that country Mr. Trimmer first pointed out, in 1831, the occurrence of fossil shells in stratified drift, at the top of a hill called Moel Tryfaen, near the Menai Straits, and not far from the base of Snowdon. I visited the spot last year, in company with my friend Mr. Symonds, and we collected there not a few of the marine Testacea. Mr. Darbishire has obtained from the same drift no less than fifty-four fossil species, all of them now living either in high northern or British seas, and eleven of them being exclusively arctic. The whole fauna bears testimony to a climate colder than that now experienced in these latitudes, though not to such extreme cold as that implied by the fauna of some of the glacial drift of Scotland. The shells alluded to were procured at the extraordinary height of 1360 feet above the sea-level, and they demonstrate an upheaval of the bed of the sea to that amount in the time of the living Testacea. A considerable part of what is called the glacial epoch had already elapsed before the shelly strata in question were deposited on Moel Tryfaen, as we may infer from the polished and striated surfaces of rocks on which the drift rests, and the occurrence of erratic blocks smoothed and scratched, at the bottom of the same drift.

"The evidence of a period of great cold in England and North America, in the times referred to, is now so universally admitted by geologists that I shall take it for granted in this Address, and briefly consider what may have been the probable causes of the refrigeration of central Europe at the era in question. One of these causes, first suggested eleven years ago by a celebrated Swiss geologist, has not, I think, received the attention which it well deserved. When I proposed, in 1833, the theory that alterations in physical geography might have given rise to those revolutions in climate which the earth's surface has experienced at successive epochs, it was objected by many that the signs of upheaval and depression were too local to account for such general changes of temperature. This objection was thought to be of peculiar weight when applied to the glacial period, because of the shortness of the time, geologically speaking, which has since transpired. But the more we examine the monuments of the ages which preceded the historical the more decided become the proofs of a general alteration in the position, depth, and height of seas, continents, and mountain-chains since the commencement of the glacial period. The meteorologist also has been learning of late years that the quantity of ice and snow in certain latitudes depends not merely on the height of mountain-chains, but also on the distribution of the surrounding sea and land even to considerable distances.

"M. Escher von der Linth gave it as his opinion in 1852 that if it were true, as Ritter had suggested, that the great African desert, or Sahara, was submerged within the modern or post-tertiary period, that same submergence might explain why the Alpine glaciers had attained so recently those colossal dimensions which, reasoning on geological data, Venetz and Charpentier had assigned to them. Since Escher first threw out this hint, the fact that the Sahara was really covered by the sea at no distant period has been confirmed by many new proofs. The distinguished Swiss geologist himself has just returned from an exploring expedition through the eastern part of the Algerian desert, in which he was accompanied by M. Desor of Neuchâtel and Professor Martins of Montpellier. These three experienced observers satisfied themselves, during the last winter, that the Sahara was under water during the period of the living species of Testacea. We had already learnt in 1856, from a memoir by M. Charles Laurent, that sands identical with those of the nearest shores of the Mediterranean, and containing, among other recent shells, the common cockle (*Cardium edule*), extend over a vast space from west to east in the desert, being not only found on the surface, but also brought up from depths of more than 20 feet by the Artesian auger. These shells have been met with at heights of more than 900 feet above the sea-level, and on ground sunk 300 feet below it; for there are in Africa, as in Western Asia, depressions of land below the level of the sea. The same cockle has been observed still living in several salt-lakes in the Sahara; and superficial incrustations of salt in many places seem to point to the drying up by evaporation of several inland seas in certain districts.

"Mr. Tristram, in his travels in 1859, traced for many miles along the southern borders of the French possessions in Africa lines of inland sea-cliffs, with caves at their bases, and old sea-beaches forming successive terraces, in which recent shells and the casts of them were agglutinated together with sand and pebbles, the whole having the form of a conglomerate. The ancient sea appears once to have stretched from the Gulf of Cabes, in Tunis, to the west coast of Africa, north of Senegambia, having a width of several hundred (perhaps where greatest, according to Mr. Tristam, 800) miles. The high lands of Barbary, including Morocco, Algeria, and Tunis, must have been separated at this period from the rest of Africa by a sea. All that we have learnt from zoologists and botanists in regard to the present fauna and flora of Barbary favours this hypothesis, and seems, at the same time, to point to a former connexion of that country with Spain, Sicily, and South Italy.

"When speculating on these changes, we may call to mind that certain deposits, full of marine shells of living species, have long been known as fringing the borders of the Red Sea, and rising several hundred feet above its shores. Evidence has also been obtained that Egypt, placed between the Red Sea and the Sahara, participated in these great continental movements. This may be inferred from the old river-terraces, lately described by Messrs. Adams and Murie, which skirt the modern alluvial plains of the Nile, and rise above them to various heights, from 30 to 100 feet and upwards. In whatever direction, therefore, we look, we see grounds for assuming that a map of Africa in the glacial period would no more resemble our present maps of that continent than Europe now resembles North America. If, then, argues Escher, the Sahara was a sea in post-tertiary times, we may understand why the Alpine glaciers formerly attained such gigantic dimensions, and why they have left moraines of such magnitude on the plains of northern Italy and the lower country of Switzerland. The Swiss peasants have a saying, when they talk of the melting of the snow, that the sun could do nothing without the Föhn, a name which they give to the well-known sirocco. This wind, after sweeping over a wide expanse of parched and burning sand in Africa, blows occasionally for days in succession across the Mediterranean, carrying with it the scorching heat of the Sahara to melt the snows of the Apennines and the Alps.

"M. Denzler, in a memoir on this subject, observes that the Föhn blew tempestuously at Algiers on the 17th of July, 1841, and then,

crossing the Mediterranean, reached Marseilles in six hours. In five more hours it was at Geneva and the Valais, throwing down a large extent of forest in the latter district, while, in the cantons of Zürich and the Grisons, it suddenly turned the leaves of many trees from green to yellow. In a few hours new-mown grass was dried and ready for the hay-stack; for, although, in passing over the Alpine snows, the sirocco absorbs much moisture, it is still far below the point of saturation when it reaches the sub-Alpine country to the north of the great chain. MM. Escher and Denzler have both of them observed on different occasions that a thickness of one foot of snow has disappeared in four hours during the prevalence of this wind. No wonder, therefore, that the Föhn is much dreaded for the sudden inundations which it sometimes causes. The snow-line of the Alps was seen by Mr. Irscher, the astronomer, from his observatory at Neuchâtel, by aid of the telescope, to rise sensibly every day while this wind was blowing. Its influence is by no means confined to the summer season; for, in the winter of 1852, it visited Zürich at Christmas, and in a few days all the surrounding country was stripped of its snow, even in the shadiest places and on the crests of high ridges. I feel the better able to appreciate the power of this wind from having myself witnessed in Sicily, in 1828, its effect in dissolving, in the month of November, the snows which then covered the summit and higher parts of Mount Etna. I had been told that I should be unable to ascend to the top of the highest cone till the following spring; but in thirty-six hours the hot breath of the sirocco stripped off from the mountain its white mantle of snow, and I ascended without difficulty.

"It is well known that the number of days during which particular winds prevail, from year to year, varies considerably. Between the years 1812 and 1820 the Föhn was less felt in Switzerland than usual; and what was the consequence? All the glaciers, during those eight or nine years, increased in height, and crept down below their former limits in their respective valleys. Many similar examples might be cited of the sensitiveness of the ice to slight variations of temperature. Captain Godwin-Austen has lately given us a description of the gigantic glaciers of the western Himalaya in those valleys where the sources of the Indus rise, between the latitudes 35° and 36° N. The highest peaks of the Karakorum range attain in that region an elevation of 28,000 feet above the sea. The glaciers, says Captain Austen, have been advancing, within the memory of the living inhabitants, so as greatly to encroach on the cultivated lands, and have so altered the climate of the adjoining valleys immediately below that only one crop a year can now be reaped from fields which formerly yielded two crops. If such changes can be experienced in less than a century, without any perceptible modification in the physical geography of that part of Asia, what mighty effects may we not imagine the submergence of the Sahara to have produced in adding to the size of the Alpine glaciers? If, between the years 1812 and 1820, a mere diminution of the number of days during which the sirocco blew could so much promote the growth and onward movement of the ice, how much greater a change would result from a total cessation of the same wind! But this would give no idea of what must have happened in the glacial period; for we cannot suppose the action of the south wind to have been suspended: it was not in abeyance, but its character was entirely different, and of an opposite nature, under the altered geographical conditions above contemplated. First, instead of passing over a parched and scorching desert, between the twentieth and thirty-fifth parallels of latitude, it would plentifully absorb moisture from a sea many hundreds of miles wide. Next, in its course over the Mediterranean, it would take up still more aqueous vapour; and when, after complete saturation, it struck the Alps, it would be driven up into the higher and more rarefied regions of the atmosphere. There the aërial current, as fast as it was cooled, would discharge its aqueous burden in the form of snow, so that the same wind which is now called 'the devourer of ice' would become its principal feeder.

"If we thus embrace Escher's theory, as accounting in no small degree for the vast size of the extinct glaciers of Switzerland and Northern Italy, we are by no means debarred from accepting at the same time Charpentier's suggestion, that the Alps in the glacial period were 2000 or 3000 feet higher than they are now. Such a difference in altitude may have been an auxiliary cause of the extreme cold, and seems the more probable now that we have obtained unequivocal proofs of such great oscillations of level in Wales within the period under consideration. We may also avail ourselves of another source of refrigeration which may have coincided in time with the submergence of the Sahara—namely, the diversion of the Gulf-stream from its present course. The shape of Europe and North America, or the boundaries of sea and land, departed so widely in the glacial period from those now established, that we cannot suppose the Gulf-stream to have taken at that period its present north-western course across the Atlantic. If it took some other direction, the climate of the north of Scotland would, according to the calculations of Mr. Hopkins, suffer a diminution in its average annual temperature of 12° F., while that of the Alps would lose 2° F. A combination of all the conditions above enumerated would certainly be attended with so great a revolution in climate as might go far to account for the excessive cold which was developed at so modern a period in the earth's history. But, even when we assume all three of them to have been simultaneously in action, we have by no means exhausted all the resources which a difference in the geographical condition of the globe might supply. Thus, for example, to name only one of them, we might suppose that the height and quantity of land near the north pole was greater at the era in question than it is now.

"The vast mechanical force that ice exerted in the glacial period has been thought by some to demonstrate a want of uniformity in the amount of energy which the same natural cause may put forth at two successive epochs. But we must be careful, when thus reasoning, to bear in mind that the power of ice is here substituted for that of running water. The one becomes a mighty agent in transporting huge erratics, and in scoring, abrading, and polishing rocks; but meanwhile the other is in abeyance. When, for example, the ancient Rhône glacier conveyed its moraines from the upper to the lower end of the Lake of Geneva, there was no great river, as there now is, forming a delta many miles in extent, and several hundred feet in depth, at the upper end of the lake.

"The more we study and comprehend the geographical changes of the glacial period, and the migrations of animals and plants to which it gave rise, the higher our conceptions are raised of the duration of that subdivision of time, which, though vast when measured by the succession of events comprised in it, was brief, if estimated by the ordinary rules of geological classification. The glacial period was, in fact, a mere episode in one of the great epochs of the earth's history; for the inhabitants of the lands and seas, before and after the grand development of snow and ice, were nearly the same. As yet we have no satisfactory proof that man existed in Europe or elsewhere during the period of extreme cold; but our investigations on this head are still in their infancy. In an early portion of the post-glacial period it has been ascertained that man flourished in Europe; and, in tracing the signs of his existence, from the historical ages to those immediately antecedent, and so backward into more ancient times, we gradually approach a dissimilar geographical state of things, when the climate was colder, and when the configuration of the surface departed considerably from that which now prevails.

"Archæologists are satisfied that in central Europe the age of bronze weapons preceded the Roman invasion of Switzerland, and prior to the Swiss lake-dwellings of the bronze age were those in which stone weapons alone were used. The Danish kitchen-middens seem to have been of about the same date; but what M. Lartet has called the reindeer period of the South of France was probably anterior, and connected with a somewhat colder climate. Of still higher antiquity was that age of ruder implements of stone such as were buried in the fluviatile drift of Amiens and Abbeville, and which were mingled in the same gravel with the bones of extinct quadrupeds, such as the elephant, rhinoceros, bear, tiger, and hyena. Between the present era and that of those earliest vestiges yet discovered of our race, valleys have been deepened and widened, the course of subterranean rivers which once flowed through caverns has been changed, and many species of wild quadrupeds have disappeared. The bed of the sea, moreover, has in the same ages been lifted up, in many places hundreds of feet above its former level, and the outlines of many a coast entirely altered.

"MM. de Verneuil and Louis Lartet have recently found, near Madrid, fossil teeth of the African elephant, in old valley-drift, containing flint implements of the same antique type as those of Amiens and Abbeville. Proof of the same elephant having inhabited Sicily in the Postpliocene, and probably within the Human period, had previously been brought to light by Baron Anca, during his exploration of the bone-caves of Palermo. We have now, therefore, evidence of man having co-existed in Europe with three species of elephant, two of them extinct (namely, the mammoth and the *Elephas antiquus*), and a third the same as that which still survives in Africa. As to the first of these—the mammoth—I am aware that some writers contend that it could not have died out many tens of thousands of years before our time, because its flesh has been found preserved in ice, in Siberia, in so fresh a state as to serve as food for dogs, bears, and wolves; but this argument seems to me fallacious. Middendorf, in 1843, after digging through some thickness of frozen soil in Siberia, came down upon an icy mass, in which the carcass of a mammoth was imbedded, so perfect that, among other parts, the pupil of its eye was taken out, and is now preserved in the Museum of Moscow. No one will deny that this elephant had lain for several thousand years in its icy envelope; and, if it had been left undisturbed, and the cold had gone on increasing, for myriads of centuries, we might reasonably expect that the frozen flesh might continue undecayed until a second glacial period had passed away.

"When speculations on the long series of events which occurred in the glacial and postglacial periods are indulged in, the imagination is apt to take alarm at the immensity of the time required to interpret the monuments of these ages, all referable to the era of existing species. In order to abridge the number of centuries which would otherwise be indispensable, a disposition is shown by many to magnify the rate of change in prehistoric times, by investing the causes which have modified the animate and inanimate world with extraordinary and excessive energy. It is related of a great Irish orator of our day that, when he was about to contribute somewhat parsimoniously towards a public charity, he was persuaded by a friend to make a more liberal donation. In doing so he apologized for his first apparent want of generosity, by saying that his early life had been a constant struggle with scanty means, and that 'they who are born to affluence cannot easily imagine how long a time it takes to get the chill of poverty out of one's bones.' In like manner, we of the living generation, when called upon to make grants of thousands of centuries in order to explain the events of what is called the modern period, shrink naturally at first from making what seems so lavish an expenditure of past time. Throughout our early education we have been accustomed to such strict economy in all that relates to the chronology of the earth and its inhabitants in remote ages, so fettered have we been by old traditional beliefs that, even when our reason is convinced, and we are persuaded that we ought to make more liberal grants of time to the geologist, we feel how hard it is to get the chill of poverty out of our bones.

"I will now briefly allude, in conclusion, to two points on which a gradual change of opinion has been taking place among geologists of late years. First, as to whether there has been a continuous succession of events in the organic and inorganic worlds, uninterrupted by violent and general catastrophes; and, secondly, whether clear evidence can be obtained of a period antecedent to the creation of organic beings on the earth. I am old enough to remember when geologists dogmatized on both these questions in a manner very different from that in which they would venture now to indulge. I believe that by far the greater number now incline to opposite views from those which were once most commonly entertained. On the first point it is worthy of remark that, although a belief in sudden and general convulsions has been losing ground, as also the doctrine of abrupt transitions from one set of species of animals and plants to another of a very different type, yet the whole series of the records which have been handed down to us are now more than ever regarded as fragmentary. They ought to be looked upon as more perfect, because numerous gaps have been filled up, and, in the formations newly intercalated in the series, we have found many missing links and various intermediate gradations between the nearest allied forms previously known in the animal and vegetable worlds. Yet the whole body of monuments which we are endeavouring to decipher appears more defective than before. For my own part, I agree with Mr. Darwin in considering them as a mere fraction of those which have once existed, while no approach to a perfect series was ever formed originally, it having never

been part of the plan of Nature to leave a complete record of all her works and operations for the enlightenment of rational beings who might study them in after-ages.

"In reference to the other great question, or the earliest date of vital phenomena on this planet, the late discoveries in Canada have at least demonstrated that certain theories founded in Europe on mere negative evidence were altogether delusive. In the course of a geological survey, carried on under the able direction of Sir William E. Logan, it has been shown that, northward of the river St. Lawrence, there is a vast series of stratified and crystalline rocks of gneiss, mica-schist, quartzite, and limestone, about 40,000 feet in thickness, which have been called Laurentian. They are more ancient than the oldest fossiliferous strata of Europe, or those to which the term primordial had been rashly assigned. In the first place, the newest part of this great crystalline series is unconformable to the ancient fossiliferous or so-called primordial rocks which overlie it; so that it must have undergone disturbing movements before the latter or primordial set were formed. Then, again, the other half of the Laurentian series is unconformable to the newer portion of the same. It is in this lowest and most ancient system of crystalline strata that a limestone about a thousand feet thick has been observed, containing organic remains. These fossils have been examined by Dr. Dawson of Montreal, and he has detected in them, by aid of the microscope, the distinct structure of a large species of Rhizopod. Fine specimens of this fossil, called *Eozoon Canadense*, have been brought to Bath by Sir William Logan, to be exhibited to the members of the Association. We have every reason to suppose that the rocks in which these animal-remains are included are of as old a date as any of the formations named azoic in Europe, if not older, so that they preceded in date rocks once supposed to have been formed before any organic beings had been created.

"I will not venture on speculations respecting 'the signs of a beginning,' or 'the prospects of an end,' of our terrestrial system—that wide ocean of scientific conjecture on which so many theorists before my time have suffered shipwreck. Without trespassing longer on your time, I will conclude by expressing to you my thanks for the honour you have done me in asking me to preside over this meeting. I have every reason to hope, from the many members and distinguishd strangers whom I already see assembled here, that it will not be inferior in interest to any of the gatherings which have preceded it."

PENDULUM OBSERVATIONS IN INDIA.

[SECOND NOTICE.]

WE proceed, as we promised to do last week, with an analysis of the correspondence which has taken place in consequence of Sir C. Wood's request to General Sabine.

Professors Stokes and Challis both think that the number of stations might be increased with advantage. The former writes:—"With respect to the number of stations at which the experiments should be made, I am of opinion that Colonel Walker's estimate of an *average* interval of 2° between consecutive stations would generally suffice to meet the scientific requirements. The selection of the positions must, however, in many cases be determined by special circumstances, such as local variations in the direction of gravity. I beg, with reference to this point, to suggest that, on the inclined sides and elevated parts of mountainous districts, as the Himalaya range, the number of the stations might with advantage be multiplied, the time given to the series of experiments at each station being at the same time shortened. The particular object of experiments made under these circumstances would be to furnish sufficient data for ascertaining by mathematical calculation whether the directions and intensities of the attractions in such localities may be accounted for solely by the ordinary law of gravitation, so that no residual phenomenon remains to be explained. This question, which is one of great scientific interest, can only be solved by the union of pendulum experiments with determinations of the directions of gravity, the local irregularities of the earth's surface, and the mean density of the materials composing the mountainous masses."

The additional stations suggested by Professor Stokes would be north of Kaliana, the northern extremity of the Arc. He writes:—"Any irregular excess or depth of matter north of that station would affect the direction of gravity, and consequently the astronomical latitude of the station, but might be situated too nearly in a horizontal direction from the station to have any sensible influence on the intensity of gravity *at the station itself*. Such excess or defect, however, if it existed, would make itself felt on the intensity of gravity at stations further north, and consequently more nearly over the region in which it occurred."

Sir J. Herschel asks "Whether an opportunity might not be taken during the progress of this operation (if carried into effect) to make trial of the applicability to such purposes of the 'torsion gravimeters' of Mr. Broun and M. Babinet, most ingeniously contrived instruments, and which, should they succeed in practice, will place the determination of the force of gravity at any place within the means of any scientific traveller, at an infinitely smaller cost of time, trouble, and outlay than the pendulum."

Dr. Robinson expresses his "conviction that, if carried out as Colonel Walker proposes, they will be a very valuable contribution to our knowledge of the earth's figure. That knowledge cannot be complete as long as it rests merely on geodetic and astronomical measurements; for both these are essentially connected with the direction of local gravity, and therefore with the distribution and density of the subjacent materials. To obtain any reliable notions of these, we can only look to pendulum experiments. Geological information is not sufficient for this purpose, as is evident from two striking facts. It gives no clue to the remarkable defect of local attraction at Moscow; and in Mr. Airy's elaborate coal-pit experiment it seems to have given him erroneous data. How far the examination by the pendulum may range in the downward co-ordinate we shall not be able to ascertain till a work like this, nearly uniformly distributed over a wide range of territory, is submitted to full and skilful discussion; but it cannot fail to give precious results. It is not mentioned whether Colonel Walker proposes to swing the pendulum in air or in vacuo, and I suppose this is matter for future consideration. I would strongly recommend the latter."

The peculiarity of the Indian Arc is thus alluded to by Professor W. H. Miller:—"At some stations considerable discordances exist between the astronomical and geodetic latitudes; and, when an attempt is made to explain away these discordances by taking into account the attraction of mountain-ranges, they are found to be too small, unless we assume that the density of the mountains and of a large portion of the underlying matter is less than the average crust of the earth. Till this hypothesis shall have been tested by pendulum observations, especially those made at short distances apart in the vicinity of mountain-regions, as recommended by Colonel Walker, the accuracy of the Indian Arc will remain open to suspicion." After pointing out that the previous experiments made by General Sabine and others would have been sufficient for the determination of the form of the earth, "if its surface, and that of every stratum of invariable density, were surfaces of revolution, as has been assumed," he adds that, as "doubt has been thrown upon the correctness of this assumption, the importance of the determination of the earth's ellipticity in a meridian widely removed from the spots at which pendulum observations have been previously made is greatly increased. Much would be added to the value of the observations made at the stations of the Indian Survey, if, before the pendulums were brought back to England, observations could be made with them at some other points, especially points nearer to the equator—such, for instance, as the south coast of Ceylon, Signapore, or on the coast of Borneo. Another accessible point, interesting from being in a long line of depression where a large gravitation might be expected, is Aden."

Professor Stokes writes as follows:—"The numerical calculations executed by Archdeacon Pratt have shown that the amount of disturbance due to the mountains and high table-land to the north of India is much more serious than might perhaps have been anticipated; but, from a comparison with the results of the Survey, it appears that some hidden source of compensation must exist, causing the effect of the mountains to be much less than would be indicated by their mere external form. These considerations referring especially to the Indian Arc, combined with the uncertainties as to local attraction which apply to any arc, render it highly desirable to apply an independent check to the amount and character of these disturbances, if we have the means of doing so at a cost which is trifling compared with the whole expense of the Survey. Now such a check is offered by pendulum observations, when the results obtained at various stations are combined. The pendulum no doubt indicates only the *vertical* component of the disturbing force, whereas it is the *horizontal component in the plane of the meridian* that affects the measures of arcs. At any one station, of course, a horizontal disturbance may exist without a vertical disturbance, and *vice versâ*; but, in a *system* of stations, disturbances of the one kind must necessarily be accompanied by disturbances of the other kind. Indeed it is theoretically possible from the vertical disturbances supposed known *actually to calculate* the horizontal disturbances, and that without assuming anything beyond the law of universal gravitation. Actually to carry this out would probably require observations to be made at stations more numerous than can be thought of; but the fact of its possibility shows how severe a check pendulum observations are capable of exercising on the results of geodetic operations."

Passing over Sir G. Everest's interesting letter, too long for insertion, we come to General Sabine's note on it and Dr. Robinson's suggestion:—

"1. Dr. Robinson recommends that the pendulums should be vibrated in vacuo at the stations of the Indian Survey. This recommendation well deserves Colonel Walker's consideration. The apparatus originally devised for that purpose (described in the *Philosophical Transactions* for 1829, Art. XVIII.) is now at the Kew Observatory. The advantages of vibrating the pendulum in a vacuum apparatus are very great: they are principally these:—

"*a.* That, with an original impulse in an arc of very moderate dimension, the pendulum vibrates for more than twenty-four hours before the vibrations become too small for the observation of coincidences; consequently the rate derived from the coincidences becomes wholly independent of any irregularity in the clock's rate which may exist in different parts of the twenty-four hours. The rate of the pendulum between successive transits of the same star may thus be obtained with greater certainty than when the vibrations are made in air, and a fresh impulse has to be given at intervals of three or four hours.

"*b.* The temperature is far more equable in the vacuum apparatus, and there are no *currents* of air. The temperature of the vibrating pendulum may be ascertained with great precision by suspending in the apparatus a bar of the same metal and of the same shape and dimensions, having two or more thermometers with their bulbs sunk in the bar; the height of the mercury being read by a telescope at a distance.

"*c.* The corrections for buoyancy are almost entirely avoided.

"By these means the time required for the determination of the rate of a pendulum may be much shortened, and the determination itself rendered more exact.

"The original cost of the vacuum apparatus now at Kew was about £25. The pedestal-cylinder might be made of a material impervious to air, but lighter than iron, for convenience in transport; and it might be prudent to take the glass cylinders, which are the least costly part, but most liable to accidents, in triplicate.

"2. Sir George Everest has suggested the expediency of trusting wholly to the rate of an *astronomical clock* for the variations of gravity at the different stations, without the employment of any invariable or detached pendulum whatsoever. With reference to this suggestion, in which I do not concur, I may refer to my own experiments at eleven stations between the equator and the latitude of 79° 50′ N.; these included results obtained—

"*a.* By free, or detached, invariable pendulums of which the rates were ascertained by the observation of coincidences.

"*b.* By invariable pendulums attached to clocks, the vibration being maintained in the usual manner by a weight and train.

"*c.* By a compensated pendulum—viz., that of the astronomical clock—the vibration being maintained by a weight and train.

"The experiments with the *detached* invariable pendulums form sect. i., pp. 3–236, and those with the *attached* invariable and compensated pendulums form sect. ii., pp. 237–287 of the volume of 'Pendulum Experiments' published in 1825. In page 285 is a table exhibiting the differences in the acceleration at each of the stations derived by each of the three methods; and in page 280 the conclusion is stated that, 'although the acceleration at a single station obtained by attached pendulums may be in error (inferred by the comparison with free pendulums), to an amount in an extreme case of two seconds per diem, yet, if the stations of experiment are sufficiently multiplied to extinguish, in an average

result, the influence of the partial irregularities introduced by the machinery of the clock, the [three] methods of experiment produce the same result.'

"The identical clocks having the same attached invariable pendulums are now at Kew, and at Colonel Walker's disposal if he wishes to take them. As at present arranged, he will take from Kew two detached invariable pendulums and the astronomical clock which I used, and which is necessarily a part of the pendulum apparatus. If he takes in addition the *attached* pendulums and their clocks, and employ the three methods, it will undoubtedly be satisfactory if (as was the case in my own experiments) the three methods should accord in the same general conclusions. But should it be otherwise, the result derived by means of pendulums kept in motion by a weight and train can scarcely be deemed as possessing an equal independent authority with that obtained by the free, or detached, invariable pendulum; and still less could the results at individual stations be so regarded.

"Sir George Everest is in error in supposing that the tail-pieces of the invariable pendulums are of iron: they are, and always were, of the same brass as the pendulum itself, covered with black varnish for the observation of coincidences."

LEARNED SOCIETIES.

Entomological Society, Sept. 5. Francis P. Pascoe, Esq., F.L.S., President, in the chair. James Bladon, Esq., of Pontypool, was elected a Member.—Mr. E. W. Janson exhibited British specimens of *Eurnysa sinuata*, Eric., *Leptusa analis*, Gyll., *Aleochara spadicea*, Eric., and *Homalota notha*, Eric.—four species of beetles hitherto unrecorded as British. Mr. Dunning exhibited larvæ of a *Noctua* (*Agrotis segetum* or *A. exclamationis?*) which had been sent to him from the East Riding of Yorkshire; the sender had had a field of turnips worth £150 entirely destroyed by a host of these caterpillars. Numerous similar instances were reported from all parts of the country. The Rev. H. Clark exhibited a specimen of *Buprestis ocellata*, a native of Central India, which had been found on board ship between Madagascar and Mauritius, and upwards of fifty miles from land: it was suggested that the beetle had probably been bred on the ship. Mr. S. Stevens exhibited a collection of Coleoptera and Lepidoptera taken during the present year by Mr. B. Lowne in Syria. Professor Westwood said that he had lately been informed by a correspondent of a disgusting practice which was said to prevail in the public parks of London; the charge was nothing less than this—that lice were purposely placed upon the public seats with the view of compelling persons frequenting the parks to hire the chairs which, for their private advantage, certain persons were allowed to let out at a small charge. Mr. Tegetmeier made some observations on the correspondence which has recently appeared in the public press on the subject of bees, and exposed many of the gross errors into which "The *Times* Beemaster" had fallen. Lieut. R. C. Beavan, Bengal Revenue Survey, communicated "A few Remarks on the Tusseh Silk-worm of Bengal."

The publication, since the last meeting, of a new part of the *Transactions* (Third Series, vol. ii., part 2) was announced.

ART.

THE NATIONAL PORTRAIT-GALLERY.

THE collection of national portraits in Great George Street, Westminster, has outgrown the narrow space assigned for its exhibition, and its removal to more suitable premises has become a question of some importance. The rooms now contain about 200 portraits of great historical interest, many of them exceedingly valuable as works of art, which are at present huddled together in three ill-lighted and dingy rooms; and such pictures as cannot be contained therein are turned out upon the walls of the dark staircase which affords access to them. The curator, Mr. Scharf, has done his best to place the most interesting portraits by turns in positions where they can be seen; but his ingenuity must be severely taxed to arrange 200 pictures in a place so ill constructed for the purpose. Still it is satisfactory to know that a collection of great public interest is growing up, as it were, in the dark, and that, so soon as a suitable place is provided for its reception, the public will have no cause to be dissatisfied with the selection which the trustees have so far been able to provide.

It must be confessed, however, that many of these portraits cannot be claimed as works of art. The rule laid down for their own guidance by the trustees, to estimate a portrait by the position or fame of the person represented, and not by its artistic value, though a good rule in a general way, is liable to mislead the judgment of men who are not fully alive to the fact that a true portrait cannot be produced by a bad painter. There are so-called portraits in this collection which no cultivated mind can accept or believe in; and the sooner the trustees can dispose of them, under the act by which the National Gallery has been relieved of so much rubbish, the better for the interests of art and the public. In many cases these may be replaced, as opportunities occur, by the abler records of well-known painters; where they cannot be replaced it is at least a question whether it is more creditable that the national collection should be noted for the presence rather than the absence of a ridiculous portrait. Some regard must be had to the intrinsic excellence of the pictures, or we shall be merely bringing together a collection of sign-boards. The trustees are probably inclined to adhere too strictly to their rule, and to obtain portraits of celebrated personages without sufficiently heeding the intrinsic probability of resemblance. That they have not gone more astray is perhaps owing to the fact that fine portraits of prominent characters are generally in existence, and likely from time to time to be submitted to their notice.

A still greater hindrance in the way of the trustees lies in the absurd conditions attached to the expenditure of the funds granted by the vote of the House of Commons. The vote for this purpose originally amounted to £2000; on Mr. Gladstone's accession to office it was reduced to £1500, and a surplus fund, amounting to between £3000 and £4000, in the hands of the trustees, was claimed by and returned into the Treasury; and of late years any part of the vote of £1500 which remains unexpended at the end of the financial year is always returned to the Treasury.

The consequences of this arrangement are obvious enough. In the first place, there will always be a temptation to expend a small balance upon inferior pictures; in the second place, except at the beginning of the year, no large sum is likely to be available for the purchase of an important work; but, above all, by depriving the trustees of the power of creating a reserve fund, the purchase of a first-rate work of art is rendered next to impossible. A fine Reynolds has brought upwards of £2000 at Christie's, and there are portraits of English worthies by Holbein, Antonio More, and Vandyck which may at any moment come into the market, and yet be utterly beyond the reach of the trustees. To tie thus the hands of the trustees is really to sacrifice the interests of the public. They should be left free to spend or to withhold; it is quite possible that in any given year they may find it inexpedient to expend a shilling, and, by reserving their funds, they may be in a position to obtain for the nation, in the following year, a portrait or portraits of national importance. To deprive them of the power of creating a reserve fund is to hold out an encouragement to a foolish and wasteful expenditure. Pictures, and portraits especially, crop up annually like mushrooms; but works of the character and importance that it is, or should be, the object of the trustees to purchase are only to be obtained at intervals and in the face of a well-informed competition. Several portraits of great public interest have been lost to the trustees which might easily have been acquired had they been at liberty to deal in a rational way with the grant made by the House of Commons.

Mr. Gladstone himself is one of the trustees; and that this subject has been brought before him by his co-trustees we have reason to believe. He probably considers that the resources and location of the Portrait-Gallery are but parts of a larger question, which embraces the future establishment of the National Gallery as well as the destination of the Royal Academy. The subject of these institutions must shortly come before Parliament; and, until it has been thoroughly discussed in that arena, no change is likely to be made affecting the temporary resources and lodgings of the National Portrait-Gallery. In the meantime we may fairly acknowledge that, upon the whole, we have reason to be grateful to the trustees for a judicious management of the means at their disposal.

During the past year several interesting portraits have been added to the collection. The best of these, and, at the same time, one of the most valuable possessions in the Gallery, is the portrait of Admiral Keppel, by Reynolds, bequeathed to the nation by the late Lord Ashburton. It is a life-sized, half-length picture of the admiral in the prime of his days. The head is relieved by a dark grey sky, in admirable keeping with the blue-and-white uniform. The warm colours are found in the flesh, the gold lace, and the broken ground, where it touches the sky; and the harmony is produced, after Reynolds's manner, by judicious and skilful glazing, the mastery of which difficult process is one of the rarest accomplishments among modern painters. The attitude of the figure is an appropriation by Reynolds of one of Vandyck's favourite postures; yet it is clearly painted from the living form of the admiral, who seems to have fallen naturally into the position suggested by the artist. The picture was probably painted in an incredibly short space of time, as it bears evidence of having been executed, as the Italians say, *al primo*, and without subsequent retouching, except by the addition of the glazing colours which bring it into harmony. The simple means by which this work was produced may account for its admirable preservation; and in this respect it is almost an exceptional work by the master, and a most interesting study for living painters. This portrait was given by Admiral Keppel to his legal adviser, Dunning, and from his possession it passed to the family of Lord Ashburton; it therefore comes to the Gallery with satisfactory evidence of its authenticity, though such evidence is hardly required in face of the picture itself. Mr. Scharf has judiciously placed it on an easel near the window, so that it may be conveniently seen before it is consigned to one of the dark places on the walls, where it will be next to impossible to examine it at all.

A portrait of Coleridge, by Washington Allston, has been lately added to the collection. It is looked upon as the best likeness extant by the surviving relatives and friends of the poet. The value of contemporary testimony is very great, and careful notes of such testimony may supply interesting materials for a future catalogue. For instance, the late Lord Lansdowne's witness to the truthfulness of the likeness of Byron in this Gallery enhances the value of the picture. Lord Lansdowne himself is represented among the later additions to the collection, at the time when, as Lord Henry Petty, he was the pride and hope of his party. The young lord was painted by Hoppner; and this portrait, which is a very good instance of the painter's manner, may now be seen in the Gallery. The trustees purchased two portraits by Copley at the sale of Lord Lyndhurst's collection, one of which is a full-length of Lord Mansfield, and the other a study from life of the head of Lord Heathfield, the defender of Gibraltar. This study is very interesting, and entirely confirms the truthfulness of Reynolds's portrait in the National Gallery now at South Kensington. The head was painted as a study for the large picture of the siege, now, we believe, at Guildhall. Not the least remarkable among the last additions to the collection are two careful and delicate crayon-drawings, by a lady, of Washington and Priestley. The drawing of Washington was made from life in America; it is a profile, and sets before us vividly the grandeur and nobleness of his features. He looks like a gentleman, as he was, and more like an English gentleman of our great revolution than an American one of the present time. Among the Englishmen of the seventeenth century and the Americans of the eighteenth we must seek for the finest outward types of our race—men whose countenances expressed convictions for which they were ready to die, whose patriotism burned in their aspect. Milton, Hampden, Cromwell, Washington, Franklin, Jefferson, and their like, have no outward counterpart in our own time either here or in America.

ART NOTES.

The King of the Belgians has, during the past week, inaugurated at Maeseyck a statue to the celebrated brothers Jean and Hubert Van Eyck, both of whom were born in that town. The statue is of marble, and is by M. Wiener, who has received the grade of officer of the order of Leopold as an acknowledgment of the value of his design and workmanship. Part of the programme of the inauguration consisted of the performance of a new cantata, composed expressly for the occasion by M. Van Dooren, to words by M. Corepelens. It is well spoken of and was loudly applauded.

The "Albrecht-Gallerie," published at Vienna, has just reached its thirtieth number in folio of lithographic fac-similes of drawings by the Old Masters in the private collection of H.I.H. the Grand Duke Albrecht.

MUSIC.

"NAAMAN" AND "KENILWORTH" AT BIRMINGHAM.

"NAAMAN," or the story which Mr. Bartholomew has ticketed with that name, was certainly an awkward subject for an oratorio; but then we know that an oratorio-writer must now be hard put to it to find material to work upon. He is limited, by convention, to the contents of the sacred volume; and, as he turns over its leaves, he finds subject after subject appropriated by previous aspirants — some touched by hands so mighty that to touch them again would be a presumption almost necessarily bringing with it the doom of failure. The great roll of prophets and apostles is nearly closed to him, and he is obliged to look for a theme among the smaller heroes of Biblical story. The restriction, certainly, to a Biblical source has no strictly logical foundation. The time may come when the treatment of some great subject *not* drawn from the annals of the Jews or early Christians may be recognised as legitimate oratorio-writing. The essence of oratorio is that it deals with subjects in which the spiritual element is dominant; and there is, in this sense, an abundance of sacred-secular in the ordinary history of the world, as there is an abundance of secular-sacred in Hebrew story. The "Solomon" or the "Jephtha" of Handel, for instance, are not a whit more sacred than the "Huguenots" of Meyerbeer or the "Orfeo" of Gluck. But, for the present, oratorio is, no doubt, practically compelled to keep to its old limits. Deep popular sympathies have to be considered; and these sympathies refuse to be roused by any tale, however moving, taken from secular story, as they are by the narratives found in the Book which has been the centre of so much of the art and poetry of the world as well as of its religion. Many a great theme, nevertheless, from the pages of that volume is yet waiting to be adequately handled. The stories, for example, of David and of Daniel are subjects that have been only feebly touched. Those of Moses and Joseph, even after what Handel, Rossini, and Mehul have written, should still be able to inspire a musician. Genius, conscious of its own power, would attack these great themes, and not spend itself on weaker material. How absurdly, on the other hand, the cardinal conditions of a sacred drama can be sometimes forgotten is shown by a recent instance in which a clever and ambitious musician chose for his subject a story which is simply the record of a disgusting murder. The genius that conceived "Macbeth" might perhaps have made Ahab's assassination of Naboth into a great tragedy. In ordinary hands, an oratorio on such a subject as this was necessarily as hopeless a task as would be a drama on the murder of Mr. Briggs. "Naaman," though not a promising theme, is a better choice than this. There is little enough, indeed, of solemn or sacred in the story (in fact, the leading personages may be simply described as having "no characters at all"); but this little has been made the most of by the librettist. The titular hero is, in the Biblical narrative, nothing more than a well-to-do general-officer, who, like a common-sense man of the world, is naturally sceptical of the virtues of a miraculous water-cure. The little slave-girl is the true heroine, and would, no doubt, if she had been called by the chronicler anything more than a "little maid," have given the name to the piece. Mr. Bartholomew has made her, by the name of "Adah," the central figure in his sketch. Her fervid faith and the mystic power of the prophet are the elements which give the story its sacred colour. Besides the cure of Naaman, the librettist has pressed into the plot three more of the miracles of Elisha, making thereby a book which, but for a very obvious reason, might more reasonably be entitled "Elisha" than "Naaman." The diction of Mr. Bartholomew's verses is not of the highest kind, and the piece wants the coherence of structure necessary to secure sustained interest; but, to balance this, it offers many excellent points for musical treatment, and is, on the whole, so very far better than many libretto-books that the composer has no reason to complain of his coadjutor. Our notes on the musical features of the successive scenes will make further detail of the plot unnecessary.

Mr. Costa has very wisely refrained from adopting the foolish modern custom of publishing large works at the moment of their first production. He discreetly follows herein the example of the great composers.* Not having, therefore, the advantage of perusing the music in print, we can only give the uncorrected impressions of a single hearing—impressions to be taken, *quantum valeant*, as subject to all the deductions implied by the circumstances of the case. This qualification, however, it may be said at once, applies only to the estimate of the relative value of individual pieces. The work, taken as a whole, leaves an impression which is perfectly definite, and which no subsequent hearing, probably, could materially modify. "Eli" announced most distinctly the nature of Mr. Costa's style. No one who knows that work—and no frequenter of the "Sacred Harmonic" performances can help being acquainted with it—can have found any difficulty in making up his mind about Mr. Costa's place in the ranks of oratorio-writers. And the prominent features of "Eli" are exactly reproduced in "Naaman"—so exactly that it would be as hard for an unkind critic to say that the composer has retrograded as it would be for the warmest admirer to say that he has advanced. The only noticeable difference between the two works is that the earlier contains more scholastic writing than the later. "Naaman" is, as "Eli" was—the past tense, we fear, is the most appropriate—an agreeable work, full of pleasant music—some of it *very* pleasant—written in a fresh and flowing style, and evidencing, by the elegance of its workmanship, the composer's familiarity with all the resources of his craft. The music is unfailingly tuneful. If it cannot be said to have much melody, in the true sense of that phrase, it is at least never other than melodious. Its phraseology is generally refined, and it is always genial, bright, and amiable. The style, moreover, has one great and signal merit—the merit, namely, of really being a style. Mr. Costa writes like himself, and, speaking broadly, like nobody else. He may borrow phrases (who does not?), but his manner is his own. It is not, as the manner of most oratorio-writing aspirants is, an eclectic imitative compound of various styles—the mock-Handelian, the cathedral-Anglican, and the Mendelssohnic. This merit of homogeneity, of individuality, which makes it so easy to characterize the music by its positive features, makes it equally so to describe by way of negatives. It is not great music: it has not, to say the truth at once, the slightest tincture of greatness about it. It has no force, no nerve, no passion-moving power. The listener is pleased, but never satisfied: still less does he feel himself, as when he hears the music of great musicians, carried away by the power of the composer. Another deficiency, and a still graver one, is also still more obvious. The music is not sacred. That always indefinable, but always recognisable, element which we agree to call the spiritual is wanting. The blank is one to be felt, not proved. The quality of sacredness, which is so easily perceived when it is present—a quality which has little or nothing to do with degrees of power, which is recognisable as easily in a Schubert or in a Chopin as in a Handel or a Beethoven—is not to be felt in Mr. Costa's music. Music there is, as we all know, and as those thousands who were at Birmingham were made to feel with signal force, which seems to take the listener up into a higher world of sensation—music which breathes the divine something which, for lack of words, we call the heavenly—a quality independent of any uttered words (felt, for instance, as strongly, perhaps more strongly, in the symphony to Mendelssohn's "Lobgesang" than in the cantata itself), and totally impossible to analyse. This quality Mr. Costa's music has not. It is complacently elegant or vivaciously animated as occasion may require; but it never, like some other music that we know, sends through the hearer the thrill of emotion which seems like a "shadowy recollection" of another world, a glimpse of the "immortal sea which brought us hither." He may give us, as he does in "Naaman," the "Holy, holy" of the seraphs in glory; but the song is of the earth, earthy. It is soft and pretty; but there is no celestial ring in it. It is this entire absence of the sacred element which must determine Mr. Costa's place as a writer of oratorio music. The fact may be disputed, of course, and can only be determined by an appeal to the instincts and emotions of ordinarily intelligent listeners; but the deficiency, if it be real, makes all comparison between his work and those of his great predecessors impossible. The difference is one not of kind, but of degree. To measure the one against the other would be like comparing Carlo Dolce with Leonardo—Tom Moore with Tennyson. This is said without the smallest desire to detract from the credit which such a work as "Naaman" justly reflects on its composer. That music may be written which shall be pleasant to hear, full of ever-varying grace of melody, genial, and even captivating, showing admirable skill and resource and the constant play of elegant fancy, and which shall yet be in an entirely different category from the music which is great and soul-inspiring, proves not the littleness of the man who makes the lesser kind, but the greatness of the men who imagined the greater. It reminds us, too, of the vast range which the glorious art covers—a range within which there is ample space for the exercise of gifts of all grades, so that they be exercised honestly. And honest without reproach is the work of Mr. Costa. It has not the least pretence about it—no clap-trap effects, no parade of artifice, no attempt to pass the natural limits of its own style, no aping the fashions of other composers. Such work deserves of right all the honour which it has received at the hands of the crowd of Birmingham amateurs whom the author's indisputable talent and thorough mastery of the duties of his post have warmed into enthusiastic admiration. "Naaman" will be heard again, without doubt. The London Society, which owes so much to Mr. Costa, must needs perform it. Keeping this in view, it is superfluous to attempt here a detailed analysis of the music. Let it suffice to point out a few of its most prominent "numbers."

The introduction describes, in a vigorous chorus, the translation of "Elijah." In the next scene, which represents the miracle of the multiplication of the oil of the Shunammite widow, occurs one of the most beautiful choruses in the work—"The curse of the Lord is in the habitation of the wicked." This is an exact fellow to the charming chorus near the opening of "Eli"—"The Lord is great;" it has the same delightful flow of melody and the same graceful motion of the inner parts. This type of chorus—and a very beautiful one it is—appears to be Mr. Costa's own. We can remember no choral writing that exactly corresponds to it. A chorale in the same scene—"When famine over Israel prevailed"—is massive and melodious, and, like most of Mr. Costa's chorales, inclines more to the form of the English than of the German hymn. A trio which follows, for soprano, tenor, and bass (the widow, *Gehazi*, and *Elisha*), is a counterpart of the similar piece in "Eli," evenly melodious, but not otherwise noticeable. After this follows the scene of *Naaman's* return from the wars, with a triumphal march (not equal to the popular favourite in "Eli") and tuneful choruses of soldiers and maidens, winding up with a *fortissimo* finale, in which trombones and flat sevenths (in the fashion of the close of "The Heavens are telling") are used unsparingly. *Naaman's* first air — "Invoking death" — is a common-place warlike demonstration, which Mr. Reeves's singing alone made tolerable. The conventional brassy accompaniment could not disguise the meagreness of the composition. *Adah* next appears in a soliloquy ("They shall be turned back") which has the usual graceful flow, the "fatal facility," of Mr. Costa's melodies, and is charmingly instrumented. Mdlle. Patti sang it to perfection, showing, as she did throughout, an articulateness and purity of accent which will entitle her to rank henceforth as one of the foremost of English oratorio-singers. The scene then changes to the temple of Rimmon, with a rather boisterous chorus of worshippers, and afterwards to the home of *Naaman*. It is here that *Adah* tries to persuade her master to seek the help of *Elisha*. She succeeds; and the scene winds up with a tripping little trio—"Haste, to Samaria let us go," which will be one of the most popular things in the oratorio. It might be described as a pretty three-voiced glee, *Timna*, *Naaman's* wife (Miss Palmer), being the second soprano. The miracle of the healing of the waters brings the first part to a close. The concluding chorus is on a large scale, introducing a short fugue, and finishing with a bold sonorous "Hallelujah." A violin passage describing the rushing of the waters can hardly help attracting notice as a too obvious copy of the well-known phrase in the corresponding chorus of "Elijah." In the second part the revivification of the widow's dead child precedes the miracle of *Naaman's* cure. Here, after a pointless air for the widow (Madame Rudersdorff), occurs a chorus of very remarkable beauty—"God, who cannot be unjust"—a perfect gem of vocal writing. It is a piece of plain harmony, in the hymn form, and was sung by the Birmingham chorus in a fashion which was a wonder to listen to. A more lovely vocal effect could hardly be imagined than that given by the magnificent breadth of *pianissimo* tone in this little piece. In this scene occurs, after a rather dull bass solo for the prophet ("Lament not thus"), which the noble singing of Mr. Santley

* The recent publication of Mendelssohn's letters will have reminded all how much "Elijah" owes to revision after its first performance.

made impressive, the "Sanctus" before alluded to. It is supposed to represent the singing of the heavenly choirs as heard by the dead child. The soft opening employs only the high voices of the chorus. The whole presently join in, and lead on to a boldly-conceived and boldly-worked fugue on the words "Hail! everlasting God," and on the subject of a peal of bells. This is certainly a fine chorus—musically, perhaps, better than anything that precedes it. It may be ranked with the "So persecute them" of "Eli." A recitative-invocation by the prophet follows, with an accompaniment picturing the return of life into the child's body. On coming to life the child describes the singing of the angels, in a pretty little piece ("I dreamt I was in heaven") which cannot help becoming a popular ladies'-song. Madame Dolby's singing of it was so simple and touching as to charm all listeners; but the song is nothing more than a sentimental ballad—a piece of Sunday evening drawing-room music. This scene is wound up by a spirited chorus, finishing with a short but effective fugue on the words "Not unto us." The magnificent tone of the tenors was particularly noticeable here. The scene of *Naaman's* cure is skilfully treated. The soprano solo of *Adah* praying for her master ("Maker of every star") is accompanied by a chorus of the sons of the prophets. Here, again, Mdlle. Patti's singing extorted applause from the audience in spite of the rule. But the quartett of thanksgiving—"Honour and glory, Almighty, be thine"—sung by Mdlle. Patti, Miss Palmer, Mr. Reeves, and Mr. Santley, was, in this respect, the crowning success of the oratorio. It starts on a bold phrase, which is irresistibly catching, and of which every note was launched forth by Mr. Sims Reeves with an energy that made it the "sensation" of the day. An ear-seizing tune like this, set so as to bring out the full sonority of the quartett, could not, of course, fail to make an impression, when entrusted to such singers. It would not be easy, however, to imagine music more absolutely destitute of sacred feeling, or a style of melody more irredeemably vulgar, than that of the leading theme. In an operatic finale it would be bad: as the subject of a thanksgiving hymn it is beneath all criticism. A full chorus—"Great God of gods"—preceded by a few bars of unaccompanied declamation for the tenor voice, concludes the oratorio. The final "Hallelujah! Amen!" is set fugally, with Mr. Costa's usual spirit. It would be easy to enlarge on the style in which the work was performed; but it must suffice to repeat that its execution by band, chorus, and soloists was beyond praise.

"Kenilworth," Mr. Arthur Sullivan's new cantata, opened very pleasantly the third evening concert of the Festival, and was cordially welcomed by a larger audience than the preceding nights had attracted. One might have hoped that Mr. Sullivan's next essay after his admirable "Tempest" music—for we need scarcely reckon a ballet and some incidental pieces—would have been on a theme fitted to test his power of grappling with a larger subject. "Kenilworth," however, is an unpretending little cantata of some forty minutes' length, and consisting, by the nature of the subject, of pageant-music and little else. As such music should be, it is lightsome, delicate, and festive. The never-failing and quite ethereal grace of its instrumentation reveals in its author not only a special gift for handling an orchestra, but that innate feeling for beauty which stamps the musician "born, not made." We know no better way of judging of such music than by simply noting how one enjoys it—a test not a little severe when the new work has to be heard, as at Birmingham, in the midst of some of the grandest inspirations that have ennobled the art, poured out, night after morning and morning after night, before almost satiated listeners. And "Kenilworth," it may be averred without reserve, answered this test. It sounded beautiful; it was refreshing and enjoyable. The subject is a courtly revel of the days of Queen Bess—a masque produced by the Earl of Leicester for the delectation of his royal guest. The time is a summer night, and the scene the lake and pleasaunce of the castle. The "Lady of the Lake" appears on a floating island; then a band of "sylvans;" then Arion, with a troop of mariners, all celebrating the glories of the virgin queen and her sea-girt realm in song and chorus, interspersed with dances "slow" and "brisk;" lastly, a "play" and a farewell choral serenade. Mr. Chorley has put all this into pleasant verse—verse, it may be said, which fits the scene as well as it is fitted by the music. The opening symphony that describes the summer night, afterwards amplified into the play scene, the slow dance with its "fal-lal" burthen, and the choral finale, seemed, on a first hearing, to be the choicest numbers in the work. The slow dance is especially charming—a dance in the pleasant old minuet time, with those quaint "false accents" which have such a winsome auld-warld sound. In the music of the "play," which, by a slight chronological license, is the immortal moonlight scene from the "Merchant of Venice," the reveries of Lorenzo and Jessica are set to soft dreamy strains, with orchestration of no less delicate texture. The "brisk" dance is lively without vulgarity, with characteristic interchange of major and minor parts; the finale is an *ensemble* for voices and orchestra, which shows breadth as well as delicacy in the handling of the chorus. The only weak piece in the whole seemed to be the nautical song of Arion, for which Mr. Santley earned an encore. The tune of this is not only commonplace, but involves a disturbing reminiscence of the theme of the finale to "Fidelio." Of the rest of the solo music, which was excellently sung by Madame Sherrington, Mr. Santley, and Mr. Cummings (*vice* Signor Mario, unwell at Florence), we must speak at some other opportunity. Such an occasion cannot be long in coming. "Kenilworth" ought to be welcomed by our smaller choral societies, or at the Crystal Palace concerts. The remaining performances at this noble feast of music—the "Mount of Olives" and miscellaneous selection on the last morning, the "Messiah" on the previous day, and the "Elijah" on the last evening—were such as to deserve a full record. Space forbids this; but we cannot omit to say that, if the climax of musical grandeur was reached during the Festival, it was in the magnificent performance of the stupendous series of choruses from "Solomon." In this immense music—immense in its beauty and in its power—the stature of Handel seemed Titanic, towering far above all rivals, old and young.

One word more it would be a discourtesy to omit—a word, namely, of thanks for the unwearying attention of the volunteer stewards to the comfort of the visitors to the Festival. Nothing could exceed the pains these gentlemen took in the performance of their sometimes laborious, but, we hope, not thankless duties. A better reward, perhaps, they do not wish than the recollection that the Festival of 1864 was a splendid success.

R. B. L.

MUSICAL AND DRAMATIC NOTES.

A CHORAL FESTIVAL of 5000 voices, under the direction of Mr. G. W. Martin, will be held at the Crystal Palace on Saturday next, the 24th instant. Her Majesty has given Mr. Martin permission to include in the programme a Chorale composed by H.R.H. the Prince Consort, with which the Festival will commence.

A CORRESPONDENT in the *Hereford Times* gives the following italicized pronounciation of our National Anthem as it was written on a card for the use of Madame Catalani, whom he remembers to have heard at Hereford forty years ago:—

"O Lord avar God, arais,
Schæter is enemis
And mece them fol.
Confound teer Politekse,
Frosstre teer nevise trix,
On George avar hopse we fix,
God save te Kin."

THE first representation of "Roland à Roncevaux" at the Opéra Français is announced for Monday next, after which the rehearsals of Meyerbeer's new work, "L'Africaine," will commence in earnest. If it prove true that the rival company has secured Signor Naudin, the management will be embarrassed where to find an efficient substitute for him.

A NEW musical composition by M. Adrien Boïeldieu, entitled "Les Naufragés," has been produced at Bayonne and performed with great success by the Orphéonists of the surrounding district. The libretto is by M. D'Anglemont.

ROSSINI has written from his villa at Passy a letter to the syndic of the town of Pesaro, acknowledging in the warmest terms the gratification he has derived from the *fêtes* in his honour held in his native town.

LAST January a competition was announced by the Préfet of the Seine and prizes offered for the best compositions suitable to be sung by the assembled choirs of Orphéonists. The prizes have now been awarded by a special commission. Out of an immense quantity of verse which the occasion called forth, ten pieces only have been judged worthy of mention, three of them have received the higher and seven the lower prize.

THE opening piece at the Théâtre Royal de la Monnaie in Brussels was the "Huguenots," in which Madame Charry was *Valentine*, M. Wicart *Raoul*, and M. Coulon *Marcel*. Madame Charry has a voice of considerable power, but it is deficient in sweetness, and her singing is commonplace. M. Coulon is a careful and finished vocalist, but incapable of giving adequate expression to the fierce Calvinistic exaltation of the character he personates. M. Wicart has long been a favourite in Brussels, and on his re-appearance after his three years of absence was received with the utmost enthusiasm. Subsequent performances have consisted of "Les Mousquetaires de la Reine," "Il Barbiere," "Robert le Diable," and "Zampa." In these Mdlle. Amina Boschetti of the Académie Impériale de Musique has made her *début*.

THE *Indépendance Belge* gives the following curious particulars of the amount received by various artists as the results of single performances. Malibran at Drury Lane received £150 each night. The same price was paid to Lablache for two performances. Grisi at New York received £400 for one performance, and shortly after obtained £2400 as the result of one night's entertainment in London. Taglioni received £150 for every performance at Hamburg, and at her second benefit at St. Petersburg she realized the extravagant sum of £8160, in addition to a magnificent present of diamond ornaments made her by the Czar.

THE Théâtre National, Rue du Cirque, Brussels, opens this (Saturday) evening for the performance of German operas. The first representation will be "Don Juan," and the second "Der Freischütz."

THE version of Dumas's drama of "Mdlle. de Belle Isle," included in Mrs. Kemble's recently-published volume of plays, will be produced on the 3rd of October at the Haymarket Theatre, and in it Mdlle. Beatrice Lucchesini, an actress of some repute at the Odéon and Vaudeville theatres, will make her first appearance before an English audience.

RISTORI is expected to make an immediate appearance in Naples, where Signor Salvini and Signore Cazzola and Sadowski are already performing. There will then be assembled in this city the most brilliant gathering of Italian theatrical talent that late years have witnessed.

AT the forthcoming *fêtes* at Brussels gratuitous performances will be given in the Théâtre Royal de la Monnaie and the Théâtre du Cirque; at the last-named theatre there will be a competition for prizes to be awarded by a commission specially appointed by government for the best dramatic compositions in Flemish.

MADAME SAINT-MARC, after a career of unbroken triumph at Brussels, now lasting over three years, is, in consequence of offers she has received, about to return to Paris.

"LA VOLONTE," a comedy in four acts and in verse, has been successfully produced at the Théâtre Français. Its author, M. Jean Duboys, is a young and until now unknown aspirant after poetic honours.

"LES PLUMES DU PAON" is the title of a pretty and sparkling comedietta by M. Leroy, produced at the Odéon.

THREE plays by Molière have been played in one evening during the past week at the Théâtre Royal—"L'École des Femmes," "Les Fourberies de Scapin, and "Le Médecin malgré lui."

A NEW farce by the author of "Box and Cox" is in rehearsal, and will shortly be produced at the Haymarket.

THE last performance of the season at the Olympic Theatre was held on Friday evening. Mr. Emden, so long associated with Mr. Robson in the management of this theatre, from which he now entirely withdraws, took his benefit on this occasion, Miss Louisa Pyne volunteering her services, and appearing in "Poor Pillicoddy." An extra performance is given this evening for the benefit of Mr. Conway, the treasurer. The theatre will then be closed and the performance of "The Ticket-of-Leave Man" arrested after a run of four hundred and seven nights.

THE Strand Theatre opens this evening for the performance of burlesque and farce.

SADLER'S WELLS THEATRE reopens this evening, Miss Marriott appearing as the *Countess of Eppenstein* in Sheridan Knowles's play of "Love." The subsequent performance consists of the burlesque of "Arline," produced at this theatre during the recess, but since altered and partly rewritten.

ASTLEY'S AMPHITHEATRE reopens on the 26th inst. with the revival of "Mazeppa," in which an American lady, Miss Adah Isaacs Menken, will take the part of *Mazeppa*.

MUSIC FOR NEXT WEEK.

SEPTEMBER 19th to 24th.

Mr. Mellon's Promenade Concerts, Covent Garden Opera-house. (Monday: a Gounod Night.)

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